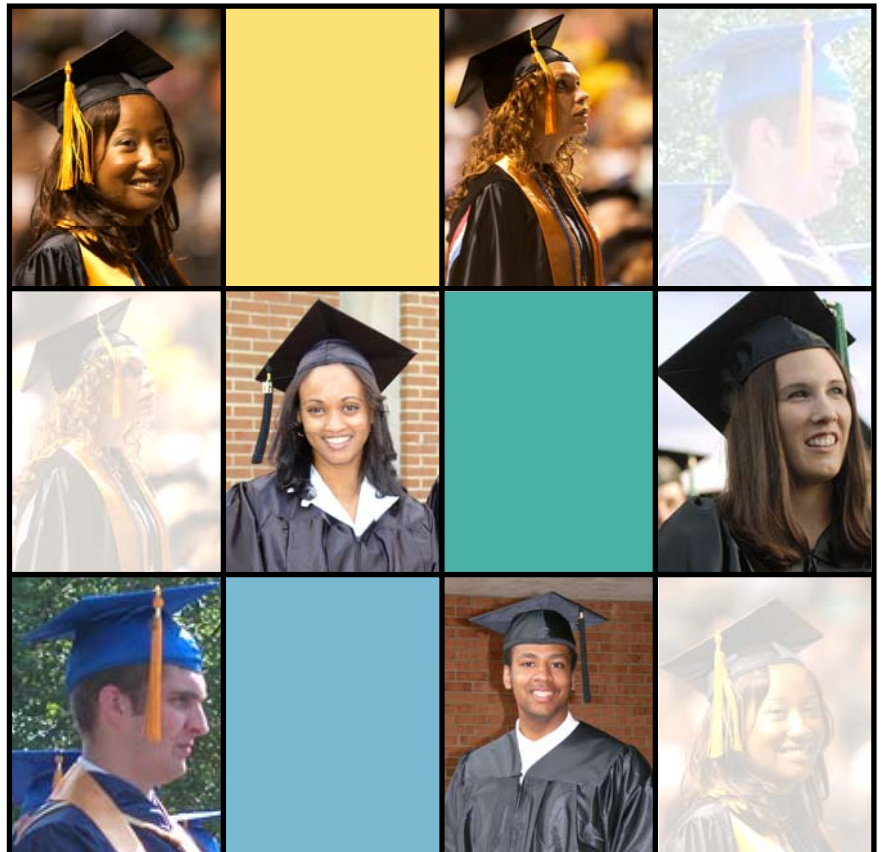


College Readiness Report

How Virginia's Community
Colleges are Addressing the
Academic Weaknesses of
Recent High School Graduates

August 2007

Prepared for the Honor States Grant
National Governors Association





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Executive Summary

Through its Center for Best Practices, the National Governors Association (NGA) selected Virginia as one of 10 states to receive funding through its Honor States Grant Program. As one of the states selected to further efforts for the NGA's Redesign the American High School initiative, Virginia received a two-year grant to implement redesign initiatives to increase high school graduation rates and improve college readiness. An academic weaknesses study was one of two studies outlined in the grant activities. The grant work plan directed that the study focus on the academic preparedness of recent Virginia high school graduates enrolled in Virginia's community colleges. The study was conducted by the Virginia Community College System (VCCS) Academic Services and Research department.

The objectives of the study as outlined by the NGA grant work plan were to:

- identify the current number of recent high school graduates enrolled in developmental education courses at Virginia's community colleges,
- determine the primary subject matter areas in which these students are enrolled,
- examine methods used by the community colleges to determine the need for developmental education, and
- formulate strategies for addressing the weaknesses before high school graduation.

The study was intended to allow educators to isolate problems and rectify them with a variety of strategies recommended in this report. The results of this study will be shared with school divisions and institutions of higher education to inform them where additional collaboration, policy decisions, or program adjustments should be considered.

The Academic Weaknesses Study used both quantitative and qualitative design methodologies. For the quantitative aspect of the study, four cohorts of recent Virginia public high school graduates, defined as those students enrolling in the community college within a year of high school graduation, were examined to identify their remediation needs. There were 50,364 recent Virginia public high school graduates who enrolled in the VCCS for the first time in Fall 2003 through Fall 2006. Approximately 81% (n=40,619) took the COMPASS placement test and for this subset of the population, placement recommendations were examined. All of Virginia's community colleges utilize ACT's computer-based, COMPASS placement test as their primary placement instrument. A college's placement testing requirement may be waived if the student demonstrates his/her readiness for college-level work. The reasons that a student may be exempted from COMPASS testing include but are not limited to: SAT[®], ACT[®], or Advanced Placement (AP[®]) scores, academic performance in or completion of designated high school courses, previous remedial coursework, previous college-level English and/or mathematics, and a four-year college degree. The subset of recent Virginia public high

school graduates that took COMPASS was then further examined based on students' race, Pell eligibility, full-time or part-time status, and high school division in which they were enrolled.

For the qualitative aspect of the study, all 23 of Virginia's community colleges were surveyed to examine how each college determines the need for developmental education and what strategies they use to address the academic weaknesses of currently enrolled students and high school students in their service regions. The colleges were asked to provide information on their special remediation practices, specifically in mathematics and English developmental courses. Colleges were also asked to provide information on how they work with local high schools and school divisions to address the remediation needs of students and the issues of college readiness.

The findings of the study are organized by placement practices, remediation data and practices, and communication practices with the high schools and school divisions.

Major findings include:

- There was a 28% increase in recent Virginia high school graduate enrollment at the VCCS from Fall 2003 to Fall 2006.
- There was a 5% gain in the proportion of students taking at least one COMPASS placement test from 78% in 2003 to 83% in 2006.
- The percentage of students receiving mathematics remediation recommendations, based on placement scores, more than doubled that of students needing reading remediation.
- The percentage of students who received recommendations for remediation based on their COMPASS placement scores in reading and mathematics remained constant from 2003 through 2006.
- The percentage of students who receive recommendations for remediation based on their COMPASS placement scores in writing decreased slightly from Fall 2003 to Fall 2006.
- Over half of the colleges (56.5%) conduct some type of post-placement assessment test to validate placement.
- Almost all of Virginia's 23 community colleges reported at least one "special" instructional or student support remediation practice, such as learning communities, intrusive advising, and peer tutoring and mentoring.
- Many colleges have developed remediation best practices in instructional and student support services.
- A number of the colleges reported establishing a successful communication loop with local school divisions to discuss college readiness and curricular alignment.

As a result of the study, it was evident that further research should be conducted in order to inform specific recommendations on high school course-taking patterns and the

best preparation for success in the community college, through graduation. Two areas for further study were recommended:

- The VCCS should reexamine the COMPASS cut-off scores used by the colleges for placement in developmental coursework as well as student success in subsequent courses in the English and mathematics pipeline.
- The VCCS, the Virginia Department of Education, and local public school divisions should collaborate on a broader, long-term, on-going remediation study that includes high school student-level data.

Based on data analysis and survey results, the following strategies are recommended to address college readiness in the Commonwealth:

- Review current data collection structures across higher education and K-12 sectors in Virginia and make recommendations as to how the structures might be improved to create a more robust reporting system that will allow institutions to better prepare students for higher education during their time in high school.
- The VCCS should reexamine the use of COMPASS as the system's primary course placement tool in light of the study results. In the recommendation for adoption, the system should also consider the diagnostic component of the tool as a necessary part of the implementation.
- The VCCS should disseminate best practices in remediation to all 23 colleges. Model academic programs, instructional practices, and student support services should be highlighted.
- Virginia Department of Education and the VCCS should identify and disseminate model communication strategies between colleges and local school divisions and encourage an increased level of collaboration between local school divisions and their local community college.
- Virginia Department of Education should disseminate results of the study to local school divisions along with recommendations on how to use the results of the study to better prepare students for higher education.

Virginia must decrease the number of students entering postsecondary education under-prepared for college-level work as well as increase the effectiveness of programs to remediate those students if we are to remain competitive in the global marketplace. We cannot just increase the rate of students attending college without a corresponding focus on helping those students complete their college degree. A determined, collaborative approach to implementation of these recommendations by both the VCCS and the Virginia Department of Education will be essential if we are to meet these goals. The results of this study should prove to be a sound starting point to address the needs of Virginia's high school students.

Foreword

This report is being released at a time in Virginia when the dialogue about college readiness is emerging from many arenas. This dialogue has been spurred by the Spellings Commission report and the increased national focus on college readiness and accountability in higher education. Governor Mark Warner, as a part of the National Governors Association grant that funded this study, appointed a P-16 Council to improve the connections and ease the transition among all sectors of education in the Commonwealth. Governor Tim Kaine, in the first part of his administration, charged the Council to continue its work. The P-16 Council released its first report to Governor Kaine and the General Assembly in October 2006. A key recommendation in that report called for a substantial increase in postsecondary attendance rates, emphasizing that a high school diploma is not the finish line for Virginia's students. I serve on the P-16 Council and am working with my peers on initiatives that will increase alignment between K-12 and higher education and reduce the need for remediation once students arrive at the community college.

Retention, graduation, and student success are central to the *Dateline 2009* strategic goals that were developed by the State Board for Community Colleges, myself, and college presidents in 2003. These goals were designed to move Virginia's community colleges forward, creating more opportunities for all Virginians and creating the economic vitality and skilled workforce Virginia needs.

As an additional part of the college readiness discussion, Virginia is participating in the American Diploma Project. The American Diploma Project is coordinating activities in 29 states that are dedicated to making sure every high school graduate is prepared for college-level work. The P-16 Council has asked the Secretary of Education to lead a team of individuals charged with the development of a college readiness standard in both mathematics and English that can be implemented across the Commonwealth.

Virginia was also chosen to be part of the first cohort of states to participate in the Achieving the Dream: Community Colleges Count initiative, funded by the Lumina Foundation. Achieving the Dream's focus is the retention and graduation of student groups, particularly minorities and low-income students, who have faced significant barriers to success. Five of our colleges are completing their third year as part of the project, and a sixth college was accepted to begin this fall. I have made it one of my priorities for the coming year to disseminate the student success best practices developed by the Achieving the Dream colleges to all of the colleges in our system.

This report should inform the important discussions already taking place in Virginia. As we collaborate with our partners on next steps, it is essential that research expand to

better inform policy decisions. Our combined goal should be to better prepare Virginia's high school students for college and workforce success. After reviewing this report, it is clear that there is more work ahead to better prepare our young people for postsecondary education and the workforce.

Dr. Glenn DuBois
Chancellor
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Table of Contents

| | Page |
|---|-------------|
| Executive Summary | i |
| Foreword..... | v |
| Acknowledgments..... | vii |
| Table of Contents..... | ix |
| List of Tables | xi |
| List of Figures..... | xii |
| Introduction..... | 1 |
| Background..... | 2 |
| Objectives | 5 |
| Methods..... | 7 |
| Remediation Survey..... | 8 |
| Survey Questions – Placement/Remediation Practices..... | 8 |
| Survey Questions – Strategies for Addressing Weaknesses..... | 8 |
| Placement Recommendations Data Analysis..... | 9 |
| Population | 9 |
| Data..... | 10 |
| Study Delimitations | 11 |
| Placement Practices of Four-Year Institutions | 11 |
| High School Transcript-Level Data and Student Diplomas | 12 |
| Placement Data | 12 |
| Findings..... | 13 |
| Remediation Recommendations | 13 |
| Placement Testing..... | 13 |
| Placement Test Scoring..... | 15 |
| Post-Placement Instructional Assessment Testing..... | 15 |
| Remedial Course Enrollments and Primary Subject Areas | 16 |
| Placement Recommendations | 16 |
| Placement Cut-off Scores and Decision Zones..... | 17 |
| Placement Recommendations by Subject Area | 18 |
| Placement Recommendations by Ethnicity, and Pell Status, and Full-time/Part-time Enrollment Status..... | 21 |
| Recommendations by Ethnicity | 22 |
| Recommendations by Pell Status..... | 24 |
| Placement Recommendations by Full-time and Part-time Enrollment Status..... | 25 |
| Remediation Recommendations by High School District | 25 |
| Remediation Practices..... | 30 |
| Instructional Strategies..... | 30 |
| Courses..... | 31 |
| Supplemental Instruction | 31 |
| Learning Communities..... | 31 |
| Instructional Technology | 32 |

| | |
|--|----|
| Other Strategies..... | 32 |
| Student Support and Coaching..... | 33 |
| Tutoring..... | 33 |
| Advising/Personal Contacts | 33 |
| Other Student Support and Coaching | 34 |
| Multi-practice Approaches..... | 34 |
| Communication Practices | 35 |
| College Readiness Expectations | 35 |
| College Readiness Testing..... | 35 |
| Data Sharing..... | 36 |
| Summary of Findings..... | 37 |
| Recommendations..... | 39 |
| References..... | 43 |
| Appendix A..... | 45 |
| Remediation Survey..... | 45 |
| Remediation Survey Follow-up | 46 |
| Appendix B | 47 |
| Trademarks | 47 |

List of Tables

| | Page |
|---|-------------|
| Table 1 Trends in First-Time Recent Virginia High School Students Enrolling in Remedial English, ESL, and Mathematics Courses during Their First Year at Two and Four-Year Institutions | 16 |
| Table 2 Number of Recent Virginia Public High School Graduates Attending One of Virginia's Community Colleges | 17 |
| Table 3 VCCS Guidelines for Course Placement Based on COMPASS Cut-off Scores | 18 |
| Table 4 Number and Percent of Reading Placement Recommendations | 19 |
| Table 5 Number and Percent of Writing Placement Recommendations | 19 |
| Table 6 Number and Percent of Mathematics Placement Recommendations | 19 |
| Table 7 Distribution of Placement Recommendations for Students Taking at Least One Placement Test | 20 |

List of Figures

| | Page |
|--|-------------|
| Figure 1 Number of Recent Virginia Public High School Graduates 02-03, 03-04, 04-05, and 05-06 Entering a Community College and Taking a Placement Test..... | 10 |
| Figure 2 Number of Recent Virginia Public High School Graduates Entering a Community College Fall 2003-06 | 17 |
| Figure 3 Percent of Recent Virginia Public High School Graduates Receiving Remediation Recommendations Based on 2003-2006 Placement Test Results..... | 20 |
| Figure 4 Percent of Students by Ethnicity Taking at Least One Placement Test in Fall 2006..... | 21 |
| Figure 5 Percent of Students by Enrollment and Pell Status Taking at Least One Placement Test | 22 |
| Figure 6 Percent of Students Placing into Remedial Reading by Ethnicity from 2003-2006..... | 22 |
| Figure 7 Percent of Students Placing into Remedial Writing by Ethnicity from 2003-2006..... | 23 |
| Figure 8 Percent of Students Placing into Remedial Mathematics by Ethnicity from 2003-2006 | 23 |
| Figure 9 Percent of Pell Grant Students Receiving Remediation Recommendations | 24 |
| Figure 10 Percent of Full-time (FT) and Part-time (PT) Students Receiving Remediation Recommendations | 25 |
| Figure 11 GIS Map – Percent of Recent Virginia Public High School Graduates Entering Virginia’s Community Colleges in Fall 2006 Under-prepared in Reading According to COMPASS Placement Tests..... | 27 |
| Figure 12 GIS Map – Percent of Recent Virginia Public High School Graduates Entering Virginia’s Community Colleges in Fall 2006 Under-prepared in Writing According to COMPASS Placement Tests..... | 28 |
| Figure 13 GIS Map – Percent of Recent Virginia Public High School Graduates Entering Virginia’s Community Colleges in Fall 2006 Under-prepared in Mathematics According to COMPASS Placement Tests | 29 |

Introduction

Educational, business, and policy leaders agree that the United States education system must raise the achievement bar for high school students. However, there is not consensus on how best to address achievement gaps and meet the challenges of college and workforce readiness. In 2005, the National Governors Association (NGA) released the Action Agenda for Improving America's High Schools, a comprehensive analysis of the issues faced by the secondary educational system in the United States. The Action Agenda cites many issues familiar to educators: high dropout rates, low graduation rates, and lower rates of college enrollment and on-time degree completion. The Action Agenda also puts considerable emphasis on college remediation rates, an area that is less frequently considered when evaluating high school performance.

In 2003, the National Center for Educational Statistics (NCES) published results from a study conducted in Fall 2000. The NCES found that 28% of incoming college freshmen nationwide enrolled in at least one remedial reading, writing, or mathematics course in the Fall 2000 as a precursor to college-level courses (NCES, 2003). Among incoming community college students, the rate of remediation is much higher. In Virginia, for example, while only 10% of in-state first-year students enrolled at a four-year institution need remediation, 50% of community college students also need remediation (Breneman, 1998).

In 2006, the Spellings Commission Report, *A Test of Leadership: Charting the Future of U.S. Higher Education*, stated in its findings that remediation has become far too common an experience for American postsecondary students. It is a consequence, the Commission states, of substandard preparation and poor alignment between high schools and colleges. The report also states that "some 40 percent of all college students end up taking at least one remedial course – at an estimated cost to the taxpayers of \$1 billion." This does not include the significant resources spent by business and industry on remediation.

The continued growth of high school graduates who need remediation at the postsecondary level illustrates a need for better communication and coordination between high schools and colleges to address the issues of college readiness for recent Virginia public high school graduates. There is no consistent definition either at secondary and postsecondary institutions about what standards comprise college readiness. As a result, 98% of public two-year institutions (and 80% of public four-year colleges) in the United States offer some type of remedial coursework to prepare students for college-level work (NCES, 2004).

As stated by the Spellings Commission, the national cost estimates for college remediation are over \$1 billion a year, yet the potential costs are clearly much higher for

businesses and communities when a large percentage of high school graduates are unprepared for college or to join the workforce. “Because too many students are not learning the basic skills needed to succeed in college or work while they are in high school, the nation loses more than \$3.7 billion a year. This figure includes \$1.4 billion to provide remedial education to students who have recently completed high school” (Alliance for Excellent Education, 2006).

According to the Virginia Department of Planning and Budget (VDPB) website, Virginia’s 2006 education budget was approximately \$12 billion (VDPB, 2006) and the 2007 education budget is an estimated \$13.7 billion (VDPB, 2007). For this study, the VCCS Budget Office reported remediation costs for Virginia’s community colleges for fiscal year 2006 were approximately \$11.2 million and projected \$11.7 million in remediation cost for the 2007 fiscal year. Although the costs of remediation at the community colleges account for less than 1% of Virginia’s total education budget, the potential costs for high school graduates, communities, and the Commonwealth extend beyond a budget line item.

Background

Through its Center for Best Practices, the NGA selected Virginia as one of 10 states to receive funding through its Honor States Grant Program. As one of the states selected to further efforts for the NGA’s Redesign the American High School initiative, Virginia received a two-year grant to implement redesign initiatives to increase high school graduation rates and improve college readiness. An Academic Weaknesses Study was one of two studies funded by the grant. The study was conducted by the VCCS and focuses on the remediation needs of recent Virginia public high school graduates enrolled in Virginia’s community colleges.

The VCCS provides comprehensive higher education and workforce training programs and services under the purview of the State Board for Community Colleges and the individual community college boards. The VCCS is comprised of 23 two-year colleges located on 40 campuses across the state. The 23 colleges in the VCCS operate under a centralized system office with a common set of courses, although all colleges do not offer the same array of courses. In 2006-2007, the system served over 230,000 full-time and part-time students, including 170,000 individuals through workforce development services. Admission is open to anyone with a high school diploma, a GED certificate, home schooling certificate of completion, a passing score on the Ability to Benefit test, or to high school students approved for dual enrollment. Students may take courses for credit and earn degrees, certificates, diplomas, as well as transfer credits to four-year colleges and universities. The VCCS also provides noncredit instruction leading to industry certifications and other workforce credentials. State legislation passed in 2002 inhibits Virginia’s public four-year colleges and universities from offering remedial courses. Section§4-5.10 of Virginia’s Appropriation Act states that “senior

institutions of higher education shall make arrangements with community colleges for the remediation of students accepted for admission by the senior institutions.” College students enrolled in public four-year institutions that require remediation are directed to take developmental courses at a community college. Private institutions are not required to follow this mandate and are not included in this study.

By collecting data from all 23 community colleges, the VCCS was able to identify the number of recent Virginia public high school graduates enrolled in developmental courses, the primary subject areas in which these students were enrolled, the methods used by the community colleges to determine the need for developmental education, special remediation practices, and collaboration efforts between the community colleges and their local school divisions. The VCCS then developed recommendations for addressing next steps as collaboration between K-12 and higher education continues and expands. Armed with a variety of recommended strategies, the study results will allow Virginia’s educational leaders to better understand and address the academic weaknesses of Virginia high school students. The results of this study will be shared with both school divisions and higher education institutions across the Commonwealth in order to inform them of areas where additional collaboration, policy decisions, or program adjustments should be considered to improve college readiness rates in Virginia.

In order to track students from high school through the community college into the four-year institutions, and to draw any conclusions about the academic weaknesses as the grant outlines, the VCCS will need data from the Virginia Department of Education. By sharing high school course-taking patterns as well as grades in college preparatory coursework, conclusions can be gleaned about the best preparation for higher education. Currently, the Virginia Department of Education does not collect transcript-level data for high school students. If the VCCS moves forward with a separate study that requires student-level course and grade information, agreements will need to be forged with local school divisions. With the exception of SCHEV, Virginia does not currently have a data-sharing agreement between education sectors. Overall, barriers to data sharing present some of the greatest challenges to understanding and addressing college readiness issues in Virginia.

The VCCS staff contacted the Community College Research Center (CCRC), at Teachers College of Columbia University. The CCRC is conducting national research on developmental education, including academic weaknesses of high school students and student progress toward higher education academic goals. The CCRC is interested in assisting the VCCS on a large scale examination of developmental education by conducting a longitudinal study of students beginning in high school, into the community college, and then to four-year institution. Academic preparedness will be the focus of the research collaboration with the CCRC. Staff at the CCRC indicated that Virginia’s

Academic Weaknesses Study for the NGA grant will lay a strong foundation for the larger research study

Objectives

To address the issue of college readiness among Virginia's high school graduates, VCCS Academic Services and Research conducted a study focused on the academic weaknesses of recent Virginia public high school graduates enrolled in Virginia's community colleges. The objectives of this study were to:

- identify the current number of recent Virginia public high school graduates enrolled in developmental education courses at Virginia's community colleges,
- determine the primary subject matter areas in which these students are enrolled,
- examine methods used by the community colleges to determine the need for developmental education, and
- formulate strategies for addressing the weaknesses before high school graduation.

The Academic Weaknesses Study was intended to allow educators to isolate problems and rectify them with a variety of strategies recommended in this report. The results of this study will be shared with school divisions and institutions of higher education to inform them where additional collaboration, policy decisions, or program adjustments should be considered.

Methods

There were four primary objectives of this study: 1) to identify the current number of recent Virginia public high school graduates in developmental education courses at the community colleges, 2) to determine the primary subject matter areas in which these students are enrolled, 3) to examine methods used by the community colleges to determine the need for developmental education, and 4) to formulate strategies to address weaknesses before high school graduation.

In order to meet the first two study objectives, SCHEV provided data on the numbers of two- and four-year students enrolling in remedial courses. Rather than examine enrollment patterns in remedial courses in the community colleges, the predominant purveyors of remedial courses in the Commonwealth, this study examined actual placement recommendations. Often, enrollment figures do not accurately reflect the need for remediation, because students may postpone enrollment in remedial courses; and non-enrollment may include those who tested into but failed to enroll in needed remedial courses. Classifying students by placement test scores which determine placement into remedial or college-level work will also inform further studies. For example, studies by the Florida Department of Education, Division of Community Colleges, found strong correlations between student success rates and mathematics placement test scores. Since classifying students by their enrollment patterns in remedial courses is not the best indicator of those students needing remediation, this study examined placement test score recommendations of recent Virginia public high school graduates by race, Pell status, full-time/part-time status, and Virginia school districts.

To assist in meeting objectives 3 and 4 of this study, a Remediation Survey of community colleges' practices was sent by email to college vice presidents from the vice chancellor of academic services and research at the VCCS. The vice presidents identified contact persons at each college to participate in the survey. The responses to the survey of the 23 Virginia community colleges were used to determine remedial education placement practices, remediation practices, and communication practices with the high schools in their service area. A follow-up survey of selected institutions based on their initial responses was sent to obtain further information. Copies of the email and follow-up email containing survey questions are included in Appendix A. Emails and follow-up phone calls were conducted over a six-week period from February 26, 2007 through April 3, 2007. Each of the 23 Virginia community colleges participated in the survey.

Remediation Survey

Survey Questions – Placement/Remediation Practices

Several survey questions helped identify methods used by community colleges to determine whether or not a student would be recommended for remedial coursework. Several survey questions addressed the colleges' placement practices, placement testing, and post-placement instructional assessments and diagnostics. The survey also included a question designed to explore any studies individual colleges had conducted with their remedial students that would help to inform this study. The following survey questions were provided to recipients at each college.

- What methods do you use to determine the need for developmental education? Who takes COMPASS? Who takes ASSET and under what circumstances? How many years have you used these instruments?
- Do you enter placement scores into PeopleSoft? If so, is this process automated or done manually?
- If a student's placement scores indicate he/she needs developmental English and/or mathematics, is this placement required (i.e., a prerequisite to college level coursework)? If so, how do you enforce it?
- Do you have any special remediation practices in the following developmental courses: English (reading or writing) and mathematics? If so, how successful are they? For example, are you using the COMPASS diagnostic data to facilitate remediation?
- Have you conducted any studies on developmental education? If so, what were your findings?

Survey Questions – Strategies for Addressing Weaknesses

The question 'How do you work with your local high schools and school divisions to address the remediation needs of students and the issues of college readiness?' examined practices already in place that might be effective in helping other colleges and schools to confront college readiness issues. In some situations, a college identified a feedback loop with the high schools that addressed college readiness. For those colleges, several follow-up questions were asked to obtain more detail about the colleges' communication practices with the high schools. Eleven of the 23 community colleges identified a feedback loop with the high schools. Below are the three follow-up survey questions and a general open-ended question that were provided to participants at 11 colleges during the six week survey period.

- How do you work with your local high schools and school divisions to address the remediation needs of students and the issues of college readiness?

- Outside of dual enrollment, how often do you provide data on student placement and remediation at your college to the high schools in your service area? How do you report the data to the high schools? Please provide details. Is there follow-up communication between your college and the high schools on the report's contents?
- Is your college working with the high schools to strategize on how to improve the college readiness of graduating seniors? If yes, how so? Please provide details. Whose role is it at the college to communicate this information and dialogue with the high schools?
- Would you like to share any additional information on your process?

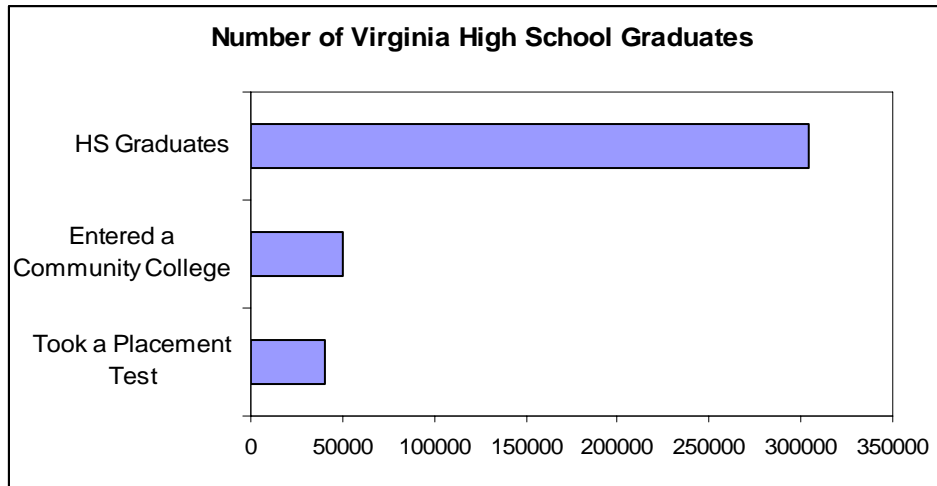
Placement Recommendations Data Analysis

Often course enrollment is used as a proxy for students needing remedial education; however, course-taking patterns often differ from remediation needs. Under some circumstances, students who test into remedial education are not required to take the course(s) during their first semester, or even their first year in college. For example, students who test into remedial mathematics may opt to avoid taking their remedial mathematics sequence until the second term of enrollment. Ideally, the best way to calculate remediation need would be to use initial college placement test scores to determine a student's need for remedial education and membership in the "needing remedial education" group. For these reasons, it was decided to take a closer look at placement recommendations throughout the VCCS for the purposes of this study.

Population

Four years of recent Virginia public high school graduates were studied. For each year - 2003, 2004, 2005, and 2006 - the population included recent Virginia public high school graduates who entered a community college for the first time in that particular fall. A recent high school graduate was defined as a student who had graduated from high school during the past year. For example, students entering in Fall 2003 reported graduating in either 2003 or 2002. In addition, students who began their college work in the summer preceding the fall term were added to the cohort. Students who were formerly identified as dual enrolled were not included in this analysis. While in high school, dual enrolled students had already taken and passed placement tests in order to participate in dual enrollment courses and clearly did not need remediation. Private school graduates were also not included in the study. Figure 1 summarizes the number of Virginia high school graduates from 2002-03 through 2005-06 entering a Virginia community college and taking at least one placement test.

Figure 1 Number of Recent Virginia Public High School Graduates 02-03, 03-04, 04-05, and 05-06 Entering a Community College and Taking a Placement Test



Data

Both four- and two-year college data were available, although the four-year data were limited. SCHEV provided an overview of the numbers of two- and four-year college students during the past five years who took a remedial course in either mathematics, English, or ESL. However, SCHEV does not collect information on how four-year colleges determine placement needs or how many students from four-year institutions were sent to the community college for remediation.

Data for this report were generated from the VCCS official enrollment reporting system (VCCS Enrollment Extract (VEE)), VCCS financial aid data files, and the Student Information System (SIS). For each fall semester from 2003 through 2006, student information from VEE files was downloaded. This information included ethnicity, gender, full-time/part-time status, program placement, high school graduation year, and high school CEEB codes, which is the high school code used by the College Board to identify the high school the student attended. Only those students who were new students in the specific fall were considered for that fall’s cohort. If a student started in the summer prior to the fall, then s/he was included in the cohort. Former dual enrolled high school graduates were not part of the cohort. Then, Pell information from the System Office financial aid files was added.

The high school that students graduated from was matched to the list of Virginia school divisions available on the Virginia Department of Education website. Schools were coded as public or private, and for this analysis, private schools were eliminated.

Then the schools and school districts were matched by the CEEB code to each student's data.

Finally, placement test scores in reading, writing, and mathematics for each fall term were downloaded from SIS and were converted into placement recommendations for remedial or college-level course placement. Since each college had its unique method for recording placement information, cut-off scores and preliminary runs of data were sent to each college's institutional research department for review and verification.

After the data were collected, SAS was used for the data analyzes to determine numbers and rates of remedial recommendations for the cohorts as a group and by ethnicity, full-time/part-time status, whether or not student received a Pell award, and high school district. Excel was used for the creation of bar graphs. ArcMap, a geographic information system (GIS), was used to display state-wide remediation needs for 2006 on geographically referenced school district GIS maps.

Study Delimitations

There were several delimitations to the study. This study examined placement scores, a direct measure of recent high school graduates' preparedness to take college-level courses. The population for this study was narrowed to those who took a placement test. Not all incoming students take a placement test; therefore it was not possible to know or explore the weaknesses of those students. Dual enrolled students were not included. Since dual enrolled students must take and pass placement tests while in high school in order to take college courses, they have already been determined to be prepared for college-level courses.

In addition, this study did not examine: 1) placement practices and enforcement at the four-year institutions, 2) students' high school grades and groundwork in English and mathematics courses for a deeper analysis of students' preparedness, and 3) final placement recommendations.

Placement Practices of Four-Year Institutions

The data on the number of students enrolled in Virginia's four-year institutions who are either required to take or are taking remedial courses at the community colleges are not collected by SCHEV. A survey of placement and remediation practices at four-year institutions was not conducted as part of this study. Consequently, this study did not examine how each four-year institution determines students' remediation needs, what the primary subject areas are, and what strategies the four-year institutions use to address the weaknesses of high school students before graduating as outlined in the grant. The remediation enforcement practices of four-year institutions were also not examined as part of this study.

High School Transcript-Level Data and Student Diplomas

In order to examine gaps between high school preparation and college placement and address weaknesses, more information regarding the high school student's type of diploma, actual coursework, and success in those courses would be needed. Currently, the Virginia Department of Education does not collect transcript-level data for high school students. With the exception of SCHEV, Virginia does not have established data sharing agreements across education sectors. As a result, the VCCS was unable to obtain high school student-level course and grade information or SOL scores. In order to track students from high school through the community college into the four-year institutions and to draw substantive conclusions about the academic weaknesses as the grant outlines, the VCCS will need high school student transcript-level data.

For 2005- 2006, the Virginia Department of Education reported that out of all the diplomas awarded that 50.8% of high school graduates received an Advanced Diploma, 43.2% received a Standard Diploma, and 6% received other diplomas (VDOE, 2007). There is no consensus about the level to which the Standard Diploma prepares Virginia's high school students for college-level work, but most educators agree that the Advanced Diploma requires sufficiently rigorous coursework to prepare students for college-level work. However, it was not possible to support this commonly-held belief with data since the community colleges do not track what high school diploma type incoming students received. As of 2006, the VCCS captures high school diploma type within the online admissions application that all students are required to submit. Unfortunately, the diploma type data are not complete and the collection method involves self-reporting by students and is not done directly from transcript analysis.

Placement Data

Exemptions to placement tests through SAT/ACT tests or high school coursework and grades are not stored in the VCCS's SIS. In some situations, colleges used supplemental assessments to further refine placement, and those also are not captured in the SIS. Therefore, this study examined placement scores and the respective cut-off scores used by colleges to determine placement into various levels of remediation and college-level courses, and approximately 81% of incoming recent Virginia public high school graduates statewide take at least one placement test. Students excluded from the more in-depth study consisted of those students exempted from placement testing through SAT/ACT scores or other criteria and students who opted not to take a placement test. Former dual enrollment students were excluded from the study since they are not considered as first-time community college enrollees.

Findings

In this section, information from SCHEV on remedial education enrollments for both two- and four-year students is provided. In addition, results from both the Remediation Survey and the data analysis of placement recommendations are summarized. The Remediation Survey asked colleges to respond to questions about their placement policies and practices, interventions and student supports that they provide to assist students needing remediation, and communication loops that they might have with their local high schools. The analyses of data on demographics of students and their placement scores from enrollment files and the Student Information System (SIS) also are found in this section. The VCCS Academic Weaknesses Study surveyed all 23 of Virginia's community colleges in order to determine how each college identifies the need for remediation and what strategies they use to address the academic weaknesses of currently enrolled students and high school students in their service regions. The survey asked colleges to provide information on their special remediation practices, specifically in English and mathematics remedial courses. Colleges were also asked to provide information on how they work with local high schools and school divisions to address students' remediation and college readiness. Initial data collected through the survey about communication with the high schools led to 11 of the 23 colleges being asked to provide additional information about how they share data on student placement and remediation with their high schools and school divisions and how they collaborate to improve the college readiness of graduating seniors.

Remediation Recommendations

Placement Testing

Through the Remediation Survey on college placement, colleges provided specific information about their COMPASS[®] and ASSET[®] placement testing practices, identified which students are given placement tests, stated if placement scores are loaded into the electronic SIS, and whether that loading process is manual or automated. The colleges were also asked if placement in remedial courses is required and if so, how the placement is enforced. All of Virginia's community colleges reported using ACT's computer-based, COMPASS placement test as their primary placement instrument. COMPASS is a computer adaptive college placement test; its predecessor, the ASSET, is a paper-and-pencil test. In the late 1990s, the VCCS mandated that all of Virginia's 23 community colleges implement and use COMPASS as the primary placement tool in order to standardize and streamline the placement testing process system-wide. In addition to COMPASS, almost all of the colleges still offer the paper-and-pencil, ASSET placement

test when computerized testing is prohibitive (e.g. for dual enrollment students, students without access to computers, distance education students, students not skilled or uncomfortable on computers, on/off campus testing of large groups, students with disabilities, and inmates). Since most colleges report minimal use of the ASSET test and some do not offer the ASSET, placement scores on the ASSET were not examined as part of this study.

The criteria for determining which students take placement tests vary from college to college. The VCCS only requires that all students who are program-placed as well as all students enrolling in college-level English or mathematics courses take a placement test. Some colleges require that all students take a placement test prior to enrolling at the college, including those in career and technical education programs.

A college's placement testing requirement may be waived if the student demonstrates his/her readiness for college-level work. The following is a list of possible exemptions that would allow a student to be waived from placement testing:

- SAT[®], ACT[®], or Advanced Placement (AP[®]) scores
- Academic performance in or completion of designated high school courses
- Previous remedial coursework
- Previous college-level English and/or mathematics
- Four-year college degree
- Enrollment in non-credit courses or credit courses with no English or mathematics prerequisites

Almost half of the colleges (47.8%) reported accepting SAT/ACT scores in lieu of placement testing. Despite the SAT/ACT waiver, these colleges indicated that most students are not waived from placement testing, as most community college-bound students do not take the SAT or ACT college entrance exams required at four-year institutions.

Colleges described testing all new students who are curricular/program-placed unless they were waived from placement testing. Several colleges indicated that in addition to prerequisites for college-level English or mathematics courses, they also require placement testing for other college-level courses, such as psychology, biology, or chemistry. Even though the VCCS sets system-wide prerequisites for entry-level general education courses, colleges are able to add additional prerequisites. For example, some colleges require students to meet designated mathematics requirements before taking a particular science course or meet specified reading requirements prior to enrolling in history courses.

All 23 of Virginia's community colleges require students to take remedial courses if placement test scores indicate remediation is needed. Over 75% of colleges stated that they use automated system indicators in SIS to enforce placement by blocking students'

enrollments in certain college-level courses until prerequisites have been met either by placement waiver, placement test score, or completion of required developmental coursework. Other colleges described relying on in-person registration with counselors/advisors and cross-checking course rosters against student course history to enforce developmental education placement policies.

Placement Test Scoring

Placement test cut-off scores, or “cut scores”, are used to establish a minimum level of knowledge that indicates whether students are either college-ready or need remediation in that particular discipline. In 2002, the VCCS formed a task force to study the cut scores used by each community college to determine remediation needs. The task force included representatives from a number of community colleges as well as ACT and VCCS staff. After a year of study, the task force recommended that instead of mandating strict system-wide cut scores, the VCCS should follow a “Decision Zone” cut-off range for course placement that provides a range within which colleges could set their own cut scores for each test (see Table 3 on page 18). Some colleges elected to keep a Decision Zone and students whose scores fall within the zone see a counselor or advisor for further recommendations.

Post-Placement Instructional Assessment Testing

In their responses to the Remediation Survey questions regarding remediation practices, the colleges revealed an interesting trend of post-placement assessment testing. Over half (56.5%) of the colleges reported that instructors administer some type of post-placement instructional assessment test to students after their initial placement into remedial courses. Students take a course readiness or diagnostic pre-test to ensure proper course placement and/or to identify areas of academic weakness. The colleges indicated that some pre-tests are created by individual instructors or used across a discipline. All pre-testing occurs either on the first day or during the first week of the class. Colleges using post-placement assessments indicated that pre-test diagnostic assessment results assist the instructor to guide students to appropriate exercises that focus students on those areas diagnosed as needing remediation. In addition to pre-testing, about one-fifth of the colleges reported that students take post-tests at the end of a remedial course. All of the colleges who conduct post-testing administer pre-tests and post-tests in at least one of the same subjects. Colleges described using post-test results to demonstrate student improvement, determine placement in the next course, and/or track course effectiveness. The following findings highlight the post-placement instructional assessment efforts of the colleges in English (reading and writing) and mathematics remedial courses.

- 56.5% of the colleges identified pre-testing in at least one discipline. Of those colleges that pre-test, 83.3% pre-test in English (reading and/or writing) and 50% pre-test in mathematics.

- 26.1% of the colleges described using other assessments, including: placement retesting, COMPASS diagnostic, Degrees of Reading Power, writing portfolios, EveryDay Writer, or other unspecified assessments.

Of the colleges that conduct post-placement instructional assessment testing, all reported its value and usefulness to determine the need for and facilitation of students' remediation at the colleges. According to these colleges, administering instructional assessments assists with verifying appropriate placement of students and assessing their academic strengths and weaknesses.

Remedial Course Enrollments and Primary Subject Areas

When examining the total population of first-time recent Virginia public high school graduates, approximately one in five enrolled in at least one remedial course in either a two- or four-year institution. Table 1 summarizes enrollments throughout the Commonwealth's colleges and universities in English and reading, English as a Second Language (ESL), and mathematics during the first year in college after graduation. More students enrolled in mathematics than enrolled in English classes.

For 2005-2006, SCHEV reported remediation data on first-time, first year college students who graduated from a Virginia high school within the previous 12 months. SCHEV found that 18.5% of students attending both two- and four-year institutions enrolled in at least one remedial course (SCHEV, 2006). Of those students who enrolled in remedial courses in 2005-06, three out of five (61%) enrolled in English and reading and three out of four (75%) enrolled in mathematics. The community colleges as a whole did not identify ESL as a primary subject area for remediation; therefore, ESL was not examined as part of this study.

Table 1 Trends in First-Time Recent Virginia High School Students Enrolling in Remedial English, ESL, and Mathematics Courses during Their First Year at Two and Four-Year Institutions

| Year | Total in Remedial Courses | English and Reading | ESL | Math | Total Students | Percentage of Students in at least one Remedial Course | Percent Enrolling in English & Reading | Percent Enrolling in Math |
|---------|---------------------------|---------------------|-----|-------|----------------|--|--|---------------------------|
| 2001-02 | 6,419 | 3,759 | 163 | 5,117 | 30,364 | 21.1% | 12.4% | 16.9% |
| 2002-03 | 5,127 | 2,878 | 42 | 4,269 | 29,514 | 17.4% | 9.8% | 14.5% |
| 2003-04 | 5,946 | 3,494 | 100 | 4,729 | 32,408 | 18.3% | 10.8% | 14.6% |
| 2004-05 | 7,573 | 4,453 | 298 | 5,669 | 35,006 | 21.6% | 12.7% | 16.2% |
| 2005-06 | 6,486 | 3,944 | 142 | 4,888 | 35,129 | 18.5% | 11.2% | 13.9% |

SOURCE: SCHEV website

Placement Recommendations

The recent Virginia public high school graduate cohorts were comprised of students who enrolled for the first-time in a Virginia community college in the particular fall term and who had graduated within the past year. For example, students in the 2003 high school cohort reported graduating in either 2002 or 2003. In addition, students who

began in the summer preceding the fall term were added to the cohort. The more in-depth analysis that follows focuses on students about whom it was unclear how prepared they were for college-level work; i.e. those who were not exempted based on high school grades or SAT/ACT scores and those who were dual enrolled. Students who were identified as formerly dual enrolled were not included in this analysis. While in high school, dual enrolled students had already taken and passed placement tests in order to participate in dual enrollment courses and clearly did not need remediation.

Figure 2 shows that high school graduate enrollments have increased 28% from 11,160 students in 2003 to 14,307 in 2006. During the last four years, approximately four out of five (about 81%) entering high school students took one or more placement tests in reading, writing, and/or mathematics (see Table 2). Earlier years were not considered because prior to 2003 not all of Virginia's community colleges had implemented the COMPASS tests.

Figure 2 Number of Recent Virginia Public High School Graduates Entering a Community College Fall 2003-06

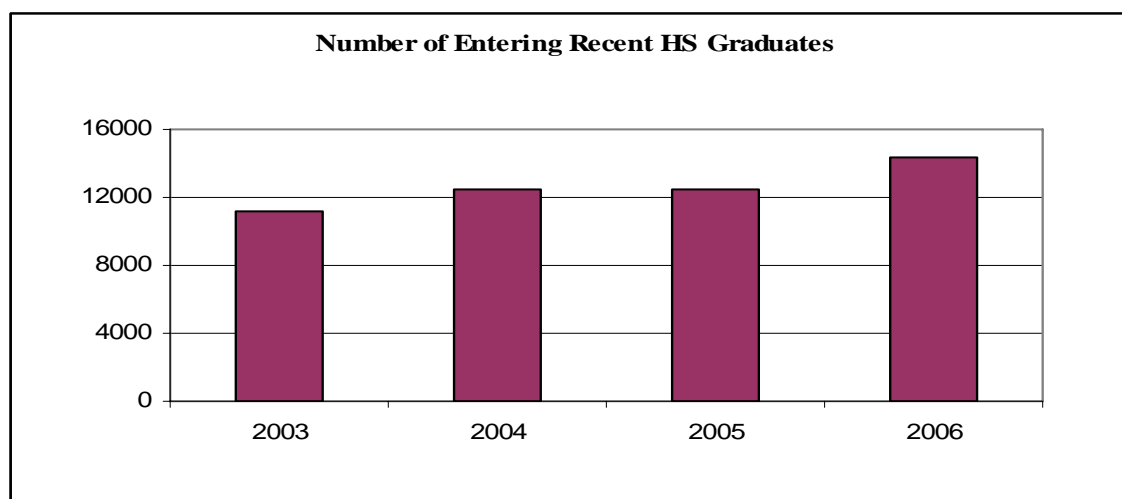


Table 2 Number of Recent Virginia Public High School Graduates Attending One of Virginia's Community Colleges

| Fall Term | N | Number Taking at least one Placement Test | Percent Taking at least one Placement Test |
|-----------|--------|---|--|
| 2003 | 11,160 | 8682 | 78% |
| 2004 | 12,428 | 9871 | 79% |
| 2005 | 12,469 | 10,161 | 81% |
| 2006 | 14,307 | 11,905 | 83% |

Placement Cut-off Scores and Decision Zones

Placement scores are manually entered into SIS by most colleges under various codes and names. Each community college in Virginia determines its own cut-off placement scores within guidelines established by the VCCS. The decision zones in the

guidelines were designed to give colleges flexibility in establishing cut scores to better meet their students' needs. The various placement guidelines for each college were examined and students' placement scores were coded to reflect the placement recommendation. Some colleges elected to keep decision zones for borderline scores. When students scored in these ranges, they were encouraged to see a counselor or take additional assessments. Table 3 provides the VCCS guidelines for course placement based on COMPASS scores.

Table 3 VCCS Guidelines for Course Placement Based on COMPASS Cut-off Scores

| Content Area | Scores | Recommendation |
|-----------------|--------|-----------------------|
| Writing | 0-68 | Writing 1 or 2 |
| | 69-75 | Decision Zone |
| | 76-99 | College Level English |
| Reading | 0-75 | Reading 1 or 2 |
| | 76-80 | Decision Zone |
| | 81-99 | College Level English |
| Pre Algebra | 0-29 | Basic Arithmetic |
| | 30-33 | Decision Zone |
| | 34-99 | Algebra I |
| Algebra | 0-31 | Algebra I |
| | 32-35 | Decision Zone |
| | 36-38 | Algebra II |
| | 39-43 | Decision Zone |
| | 44-99 | College Level Math |
| College Algebra | 0-35 | Algebra II |
| | 36-40 | Decision Zone |
| | 41-99 | College Level Math |

Placement Recommendations by Subject Area

Tables 4, 5, and 6 show the number and percent of students receiving decision zone scores or placement recommendations for reading, writing, and mathematics. Students were more likely to place into college-level English (about 66%) based on reading recommendations than those with writing recommendations (about 52%); however, they were least likely to place into college-level mathematics (about 20%). Higher proportions of students, on average, placed in decision zones in writing (7%) than in reading (2.5%) or mathematics (2.8%).

Table 4 Number and Percent of Reading Placement Recommendations

| | Reading Placement Recommendations | | | | | | All |
|------|-----------------------------------|------|---------------|-----|-------------|------|--------|
| | College Level | | Decision Zone | | Remediation | | N |
| | n | % | n | % | n | % | |
| 2003 | 5419 | 66.9 | 201 | 2.5 | 2477 | 30.6 | 8097 |
| 2004 | 6036 | 67.4 | 201 | 2.2 | 2718 | 30.4 | 8955 |
| 2005 | 6207 | 66.2 | 224 | 2.4 | 2939 | 31.4 | 9370 |
| 2006 | 7348 | 66.2 | 255 | 2.3 | 3492 | 31.5 | 11,095 |

Table 5 Number and Percent of Writing Placement Recommendations

| | Writing Placement Recommendations | | | | | | All |
|------|-----------------------------------|------|---------------|-----|-------------|------|--------|
| | College Level | | Decision Zone | | Remediation | | N |
| | n | % | n | % | n | % | |
| 2003 | 4072 | 50.5 | 598 | 7.4 | 3392 | 42.1 | 8062 |
| 2004 | 4659 | 52.1 | 629 | 7.0 | 3656 | 40.9 | 8944 |
| 2005 | 4880 | 52.2 | 589 | 6.3 | 3883 | 41.5 | 9352 |
| 2006 | 6033 | 54.5 | 692 | 6.2 | 4351 | 39.3 | 11,076 |

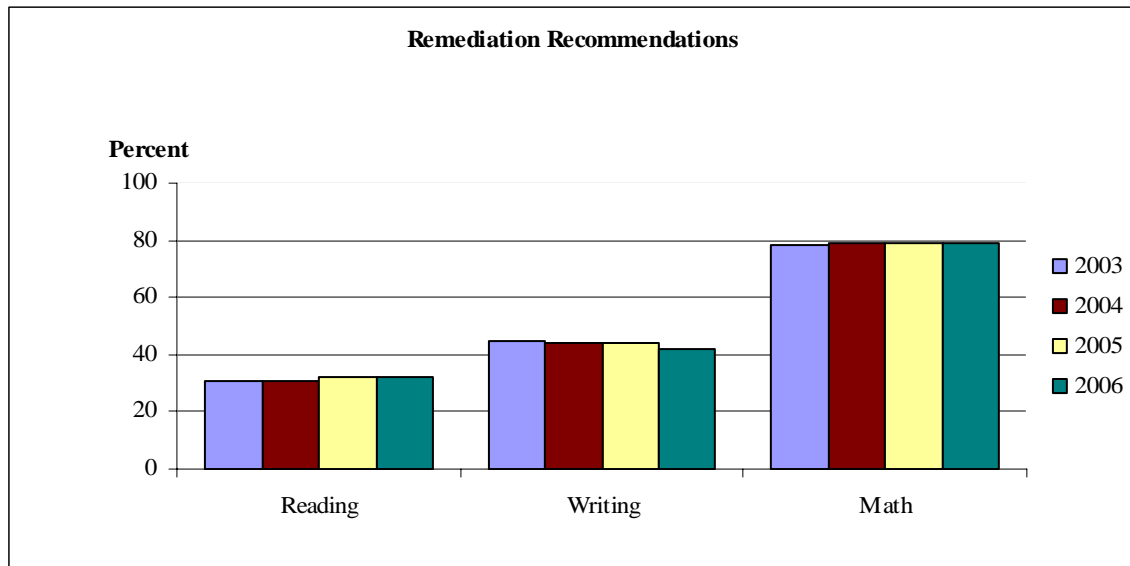
Table 6 Number and Percent of Mathematics Placement Recommendations

| | Mathematics Placement Recommendations | | | | | | All |
|------|---------------------------------------|------|---------------|-----|-------------|------|--------|
| | College Level | | Decision Zone | | Remediation | | N |
| | n | % | n | % | n | % | |
| 2003 | 1689 | 20.8 | 229 | 2.8 | 6189 | 76.3 | 8107 |
| 2004 | 1810 | 19.8 | 233 | 2.5 | 7114 | 77.7 | 9157 |
| 2005 | 1830 | 19.6 | 275 | 2.9 | 7251 | 77.5 | 9356 |
| 2006 | 2164 | 20.1 | 335 | 3.1 | 8264 | 76.8 | 10,763 |

In most cases, students scoring in decision zones were placed into college-level courses. However, since it was not clear from the data what recommendations students received, scores that were in the decision zones were eliminated from the subsequent analyses.

Figure 3 illustrates that students were best prepared in reading and then writing, with students being the least prepared in mathematics. The number of students under-prepared in mathematics was over twice the number under-prepared in reading. Over the four years examined, the proportions of students receiving reading, writing, and mathematics recommendations stayed relatively constant.

Figure 3 Percent of Recent Virginia Public High School Graduates Receiving Remediation Recommendations Based on 2003-2006 Placement Test Results



NOTE: Decision zone scores eliminated from analysis.

Table 7 summarizes placement recommendations for student taking at least one placement test with those scoring in Decision Zones eliminated. Over the four fall terms, 20% of students received no remediation recommendations; while approximately 17% received remediation recommendations in all three areas. Many students received recommendations for only mathematics, and very few received recommendations for only reading or writing.

Table 7 Distribution of Placement Recommendations for Students Taking at Least One Placement Test

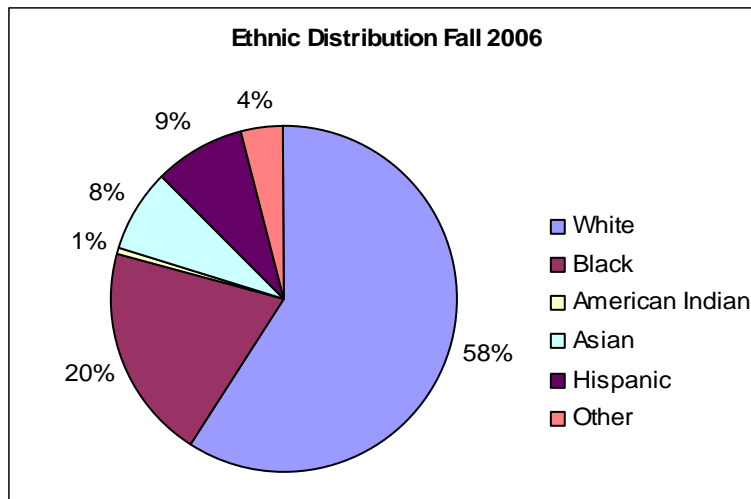
| | Remediation Recommendations | | | | | | | | | | | | | | | | |
|------|-----------------------------|----|--------------|---|--------------|---|-----------|----|---------------------|---|------------------|---|------------------|----|-------|----|--------|
| | No Remediation | | Reading Only | | Writing Only | | Math Only | | Reading and Writing | | Writing and Math | | Reading and Math | | All 3 | | Total* |
| | n | % | n | % | n | % | n | % | n | % | n | % | n | % | n | % | |
| 2003 | 1638 | 19 | 187 | 2 | 400 | 5 | 2878 | 33 | 252 | 3 | 571 | 7 | 1273 | 15 | 1467 | 17 | 8666 |
| 2004 | 1873 | 19 | 185 | 2 | 423 | 4 | 3508 | 36 | 260 | 3 | 633 | 6 | 1333 | 14 | 1640 | 17 | 9855 |
| 2005 | 1962 | 19 | 196 | 2 | 447 | 4 | 3407 | 34 | 281 | 3 | 689 | 7 | 1382 | 14 | 1773 | 18 | 10,137 |
| 2006 | 2531 | 21 | 247 | 2 | 495 | 4 | 3810 | 32 | 335 | 3 | 933 | 8 | 1544 | 13 | 1977 | 17 | 11,872 |

*Those receiving decision zone scores were eliminated from these calculations.

Placement Recommendations by Ethnicity, and Pell Status, and Full-time/Part-time Enrollment Status

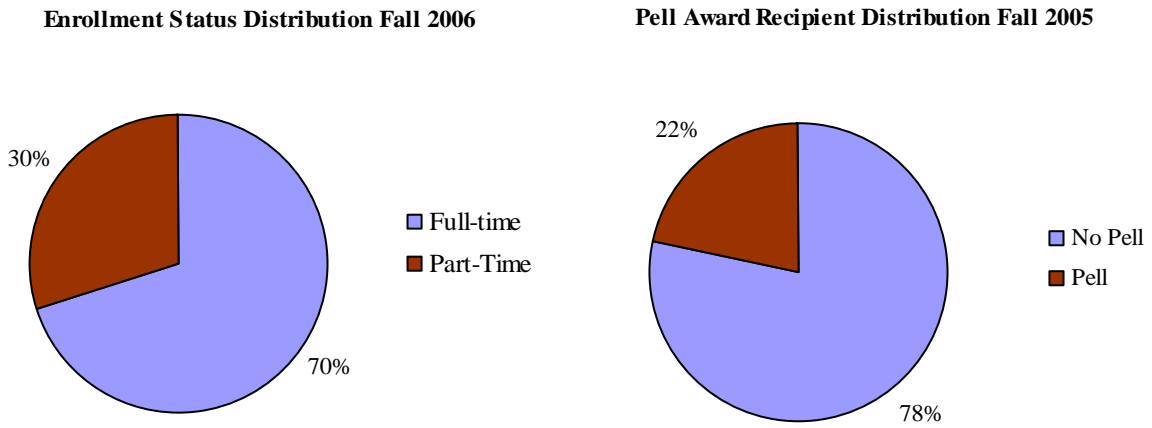
In 2006, the typical recent Virginia public high school graduate attending a Virginia community college, taking at least one placement test, was Caucasian, a full-time student, and not a Pell award recipient. The study found that there was little to no change in these demographic proportions over the 2003-2006 fall term enrollments examined. Figure 4 shows that Whites comprised over half (58%) of the students taking at least one placement test and Blacks approximately one-fifth (20%). Asians and Hispanics together accounted for approximately 17%.

Figure 4 Percent of Students by Ethnicity Taking at Least One Placement Test in Fall 2006



In Figure 5, more than twice as many students enroll full-time (70%) as those who enroll part-time (30%). Approximately one in five students (22%) in 2005 received a Pell award.

Figure 5 Percent of Students by Enrollment and Pell Status Taking at Least One Placement Test



*2006 Pell award data was not available during this study.

Recommendations by Ethnicity

In Figures 6 through 8, Caucasian students received fewer recommendations in reading and writing than their minority counterparts; however in mathematics fewer Asian students received remediation recommendations.

Figure 6 Percent of Students Placing into Remedial Reading by Ethnicity from 2003-2006

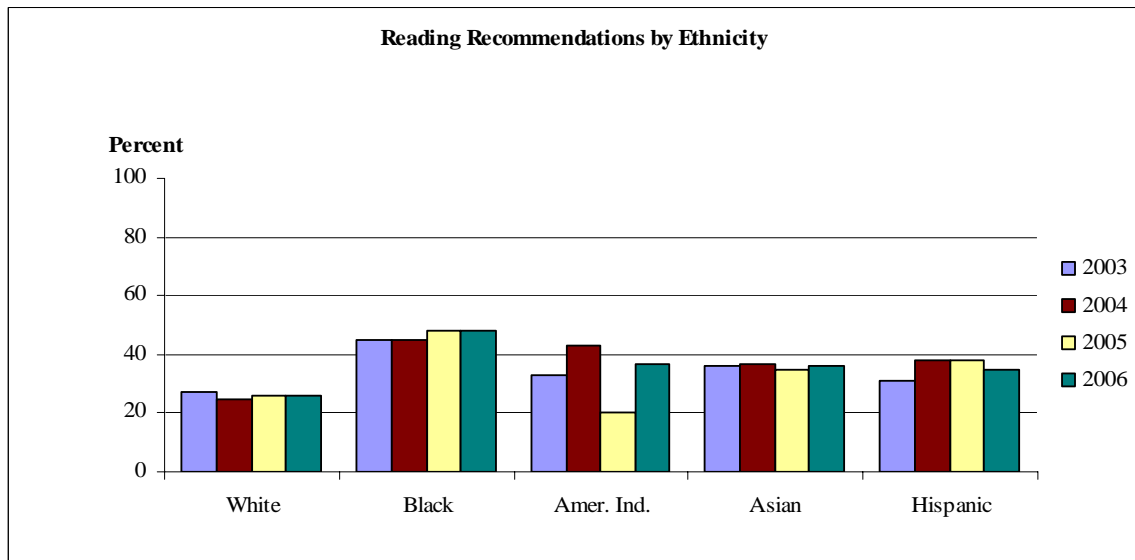


Figure 7 Percent of Students Placing into Remedial Writing by Ethnicity from 2003-2006

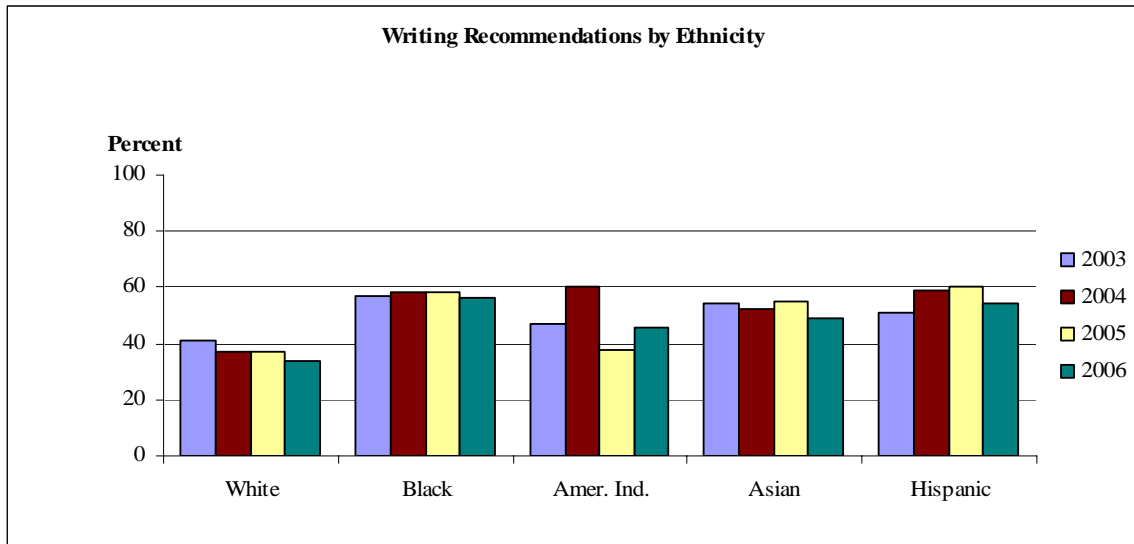
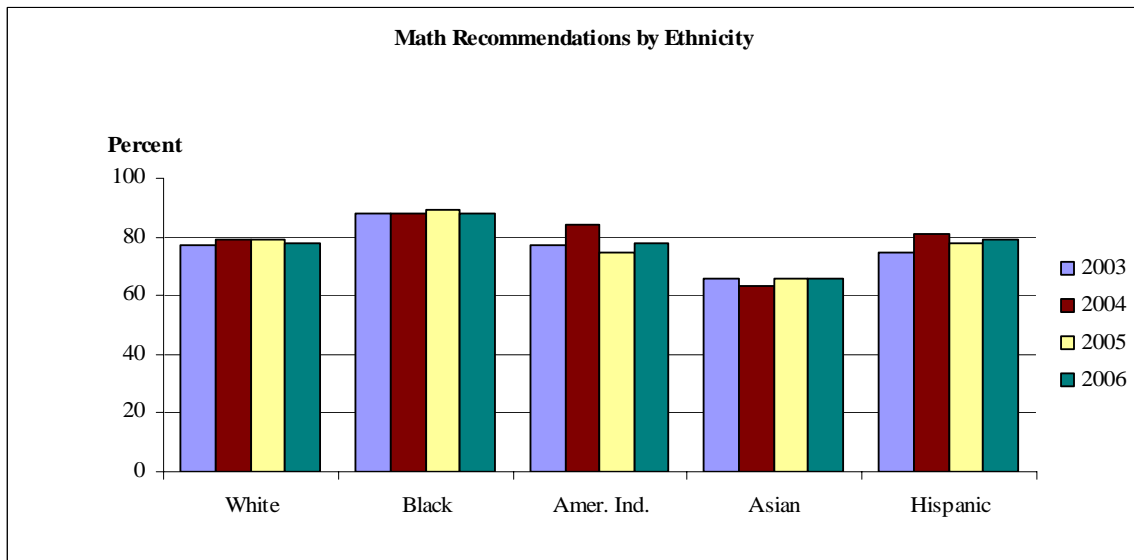


Figure 8 Percent of Students Placing into Remedial Mathematics by Ethnicity from 2003-2006

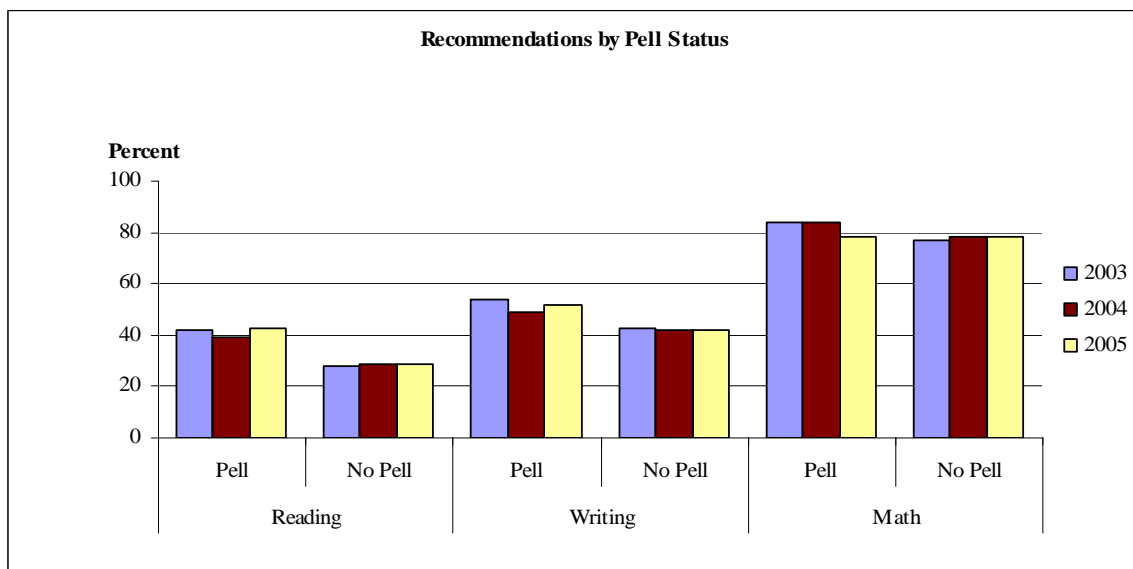


Recommendations by Pell Status

As a proxy for determining socioeconomic status, students receiving Pell grants were identified as low-income students. Only fall terms 2003 through 2005 were examined because financial aid data for 2006 had not been officially reported at the time of this study. Figure 9 demonstrates that low-income students were more likely to receive recommendations for remedial work in each subject and that the gaps in each area between those receiving Pell awards and those not receiving Pell awards in 2005 were similar to the gap in 2003. Approximately, two-fifths of the students receiving Pell awards (41%) needed remediation in reading, while over half (52%) needed remediation in writing. However, approximately four-fifths (84%) of the students receiving Pell awards needed remediation in mathematics.

It appears that low-income students, those receiving Pell awards, differ from those not receiving Pell awards in several ways. They have more reading deficiencies than those not receiving Pell awards. In reading, the difference between Pell and non-Pell students was the highest in 2003 and 2005, with a 14% difference (43%, Pell; 29%, Non-Pell) in rates of remedial recommendations. However, the difference (between those who received Pell awards and those who did not) was lower in both writing and mathematics. Remedial writing recommendations showed a difference of approximately 9% over the three years (51% Pell, 42% No Pell). In mathematics, the difference between the rates of remedial recommendations for low-income students was only 6% (84% Pell, 78% No Pell) in 2004 and 2005.

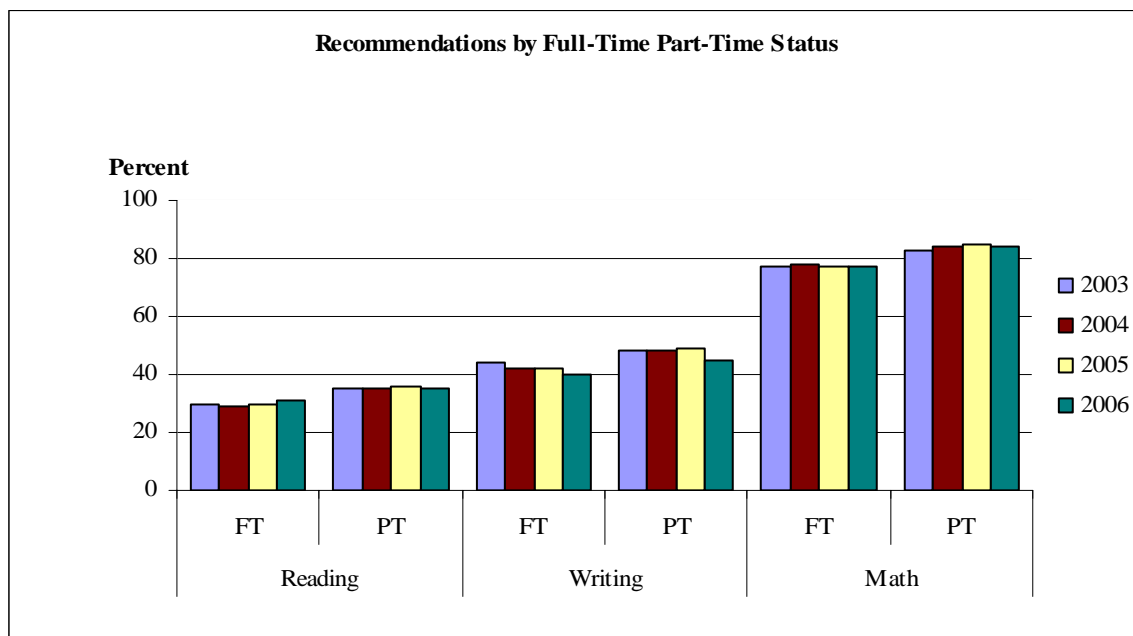
Figure 9 Percent of Pell Grant Students Receiving Remediation Recommendations



Placement Recommendations by Full-time and Part-time Enrollment Status

Overall, the differences between full-time and part-time enrolled students and their rates of remediation recommendations were small (see Figure 10). Part-time students received higher rates of remedial recommendations in reading, writing, and mathematics. The difference between full-time and part-time students receiving remedial recommendations in mathematics was approximately 7%, and the corresponding difference in reading and writing was approximately 5%. Reading, writing, and mathematics recommendations remained constant from 2003 to 2006 for both full-time and part-time students.

Figure 10 Percent of Full-time (FT) and Part-time (PT) Students Receiving Remediation Recommendations



GIS Maps of Remediation Recommendation Rates

Using College Board CEEB high school codes from the VCCS's student information database, students' placement recommendations were matched to high schools and their school districts. Since Virginia's school districts correspond to either the county or city legal jurisdiction, it was possible to look at the distribution of students under-prepared for college study throughout the state. These maps reflect placement test recommendations for recent Virginia high school graduates who enroll in the community college in Fall 2006 and do not include those exempted or dual enrolled students.

Figures 11, 12, and 13 display three GIS maps with the proportions by high school district of recent Virginia public high school graduates receiving reading, writing, and mathematics recommendations based on COMPASS placement test results for Fall 2006. Several counties had few or no students represented (white-shaded areas). This is a result of few or no students from those districts having completed COMPASS during the time period.

The least amount of remediation recommendations throughout the state were in reading. Most of the school districts whose students took at least one placement test received reading recommendations at rates between 26 and 51%, and there were only a few districts where more than 51% of those taking placement tests at the community college were under-prepared in reading (Figure 11). For writing, there were more counties with higher concentrations of under-prepared students than for reading, and they are scattered throughout the state (Figures 11 and 12). However, Figure 13 shows a disproportionate number of students needing mathematics remediation. The high need for mathematics remediation is predominant throughout the middle and lower parts of the state.

Figure 11 GIS Map – Percent of Recent Virginia Public High School Graduates Entering Virginia’s Community Colleges in Fall 2006 Under-prepared in Reading According to COMPASS Placement Tests

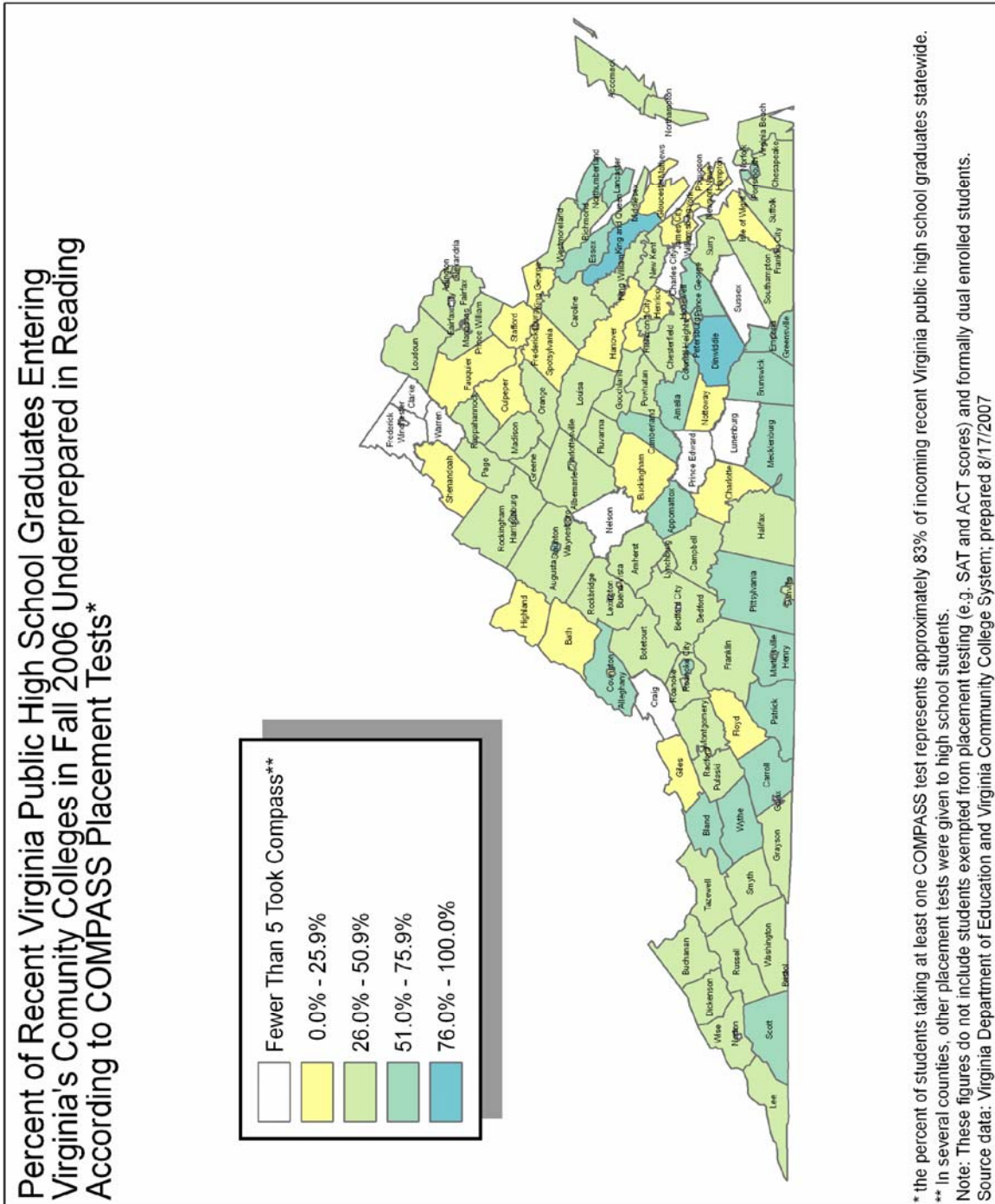


Figure 12 GIS Map – Percent of Recent Virginia Public High School Graduates Entering Virginia’s Community Colleges in Fall 2006 Under-prepared in Writing According to COMPASS Placement Tests

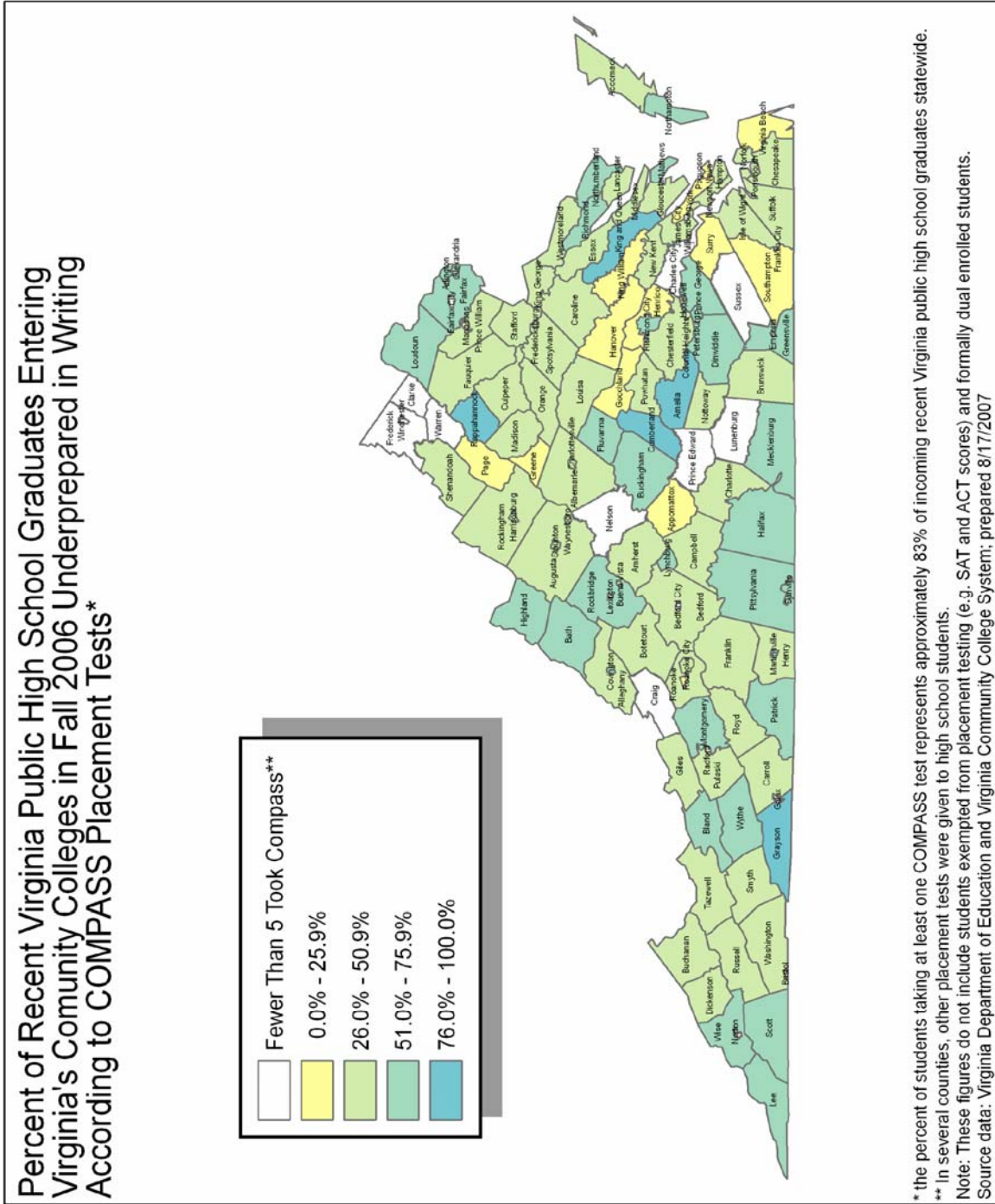
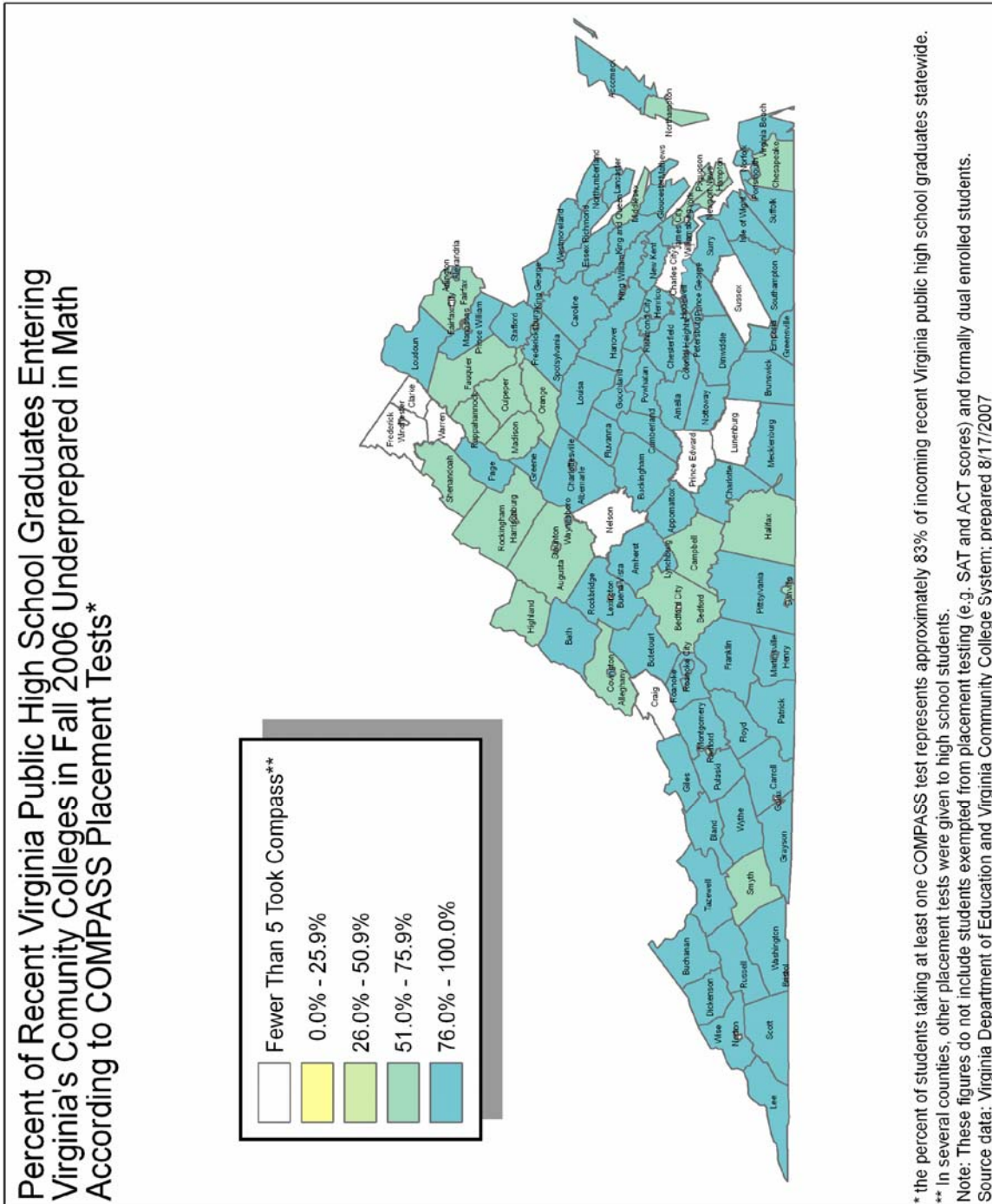


Figure 13 GIS Map – Percent of Recent Virginia Public High School Graduates Entering Virginia’s Community Colleges in Fall 2006 Under-prepared in Mathematics According to COMPASS Placement Tests



Remediation Practices

The Remediation Survey asked the community colleges to provide information about their special remediation practices, designed to address academic weaknesses of currently enrolled students, specifically in English and mathematics remedial courses. Responses to the survey indicated that the colleges' remediation practices consist of various types of instructional assessments, instructional strategies, and student support services.

- The colleges identified the following special instructional assessment practices: pre-testing, post-testing, and other diagnostic assessments administered as part of the remedial course. As described in the Post-Placement Instructional Assessment section (page 15), 56.5% of the colleges identified pre-testing in at least one discipline. Of those colleges that pre-test, 83.3% pre-test in English (reading and/or writing) and 50% pre-test in mathematics. Other reading assessments identified by the colleges include the COMPASS diagnostic component, Nelson-Denny Reading Test, and Degrees of Reading Power.
- Colleges described special instructional strategies, including new or redesigned courses, learning communities, supplemental instruction, instructional technology, and other pedagogical approaches. In response to the survey, 52.2% of the colleges identified instructional strategies as a practice; of those colleges, almost 60% described using two or more strategies.
- The colleges also highlighted student support practices that include advising and early alert systems, tutoring, academic learning centers and labs, and other types of support. The survey revealed that 65.2% of the colleges identified student support practices. Of those colleges, over half (53.3%) reported the use of two or more student support practices.

Almost all of Virginia's 23 community colleges identified at least one "special" instructional or student support remediation practice used specifically in English (reading and writing) and mathematics remedial courses. The three most prevalent special remediation practice types reported by the colleges are pre-testing (instructional assessment), the use of instructional technology (instructional strategy) incorporated into the course, and tutoring services (student support). Over half of the colleges pre-test remedial students, roughly 30% use instructional technology as a course enhancement, and almost 40% offer tutoring services.

Instructional Strategies

In response to the Remediation Survey, 12 of 23 colleges (52.2%) reported instructional strategies as a remediation practice. Seven colleges reported having two or more as a practice. Instructional strategies described in the survey include courses, supplemental instruction, learning communities, and instructional technology.

Courses

The community colleges described creating new courses and re-designing existing courses, as well as developing new approaches to classroom instruction, in order to address remediation needs. These new initiatives include modularized and integrated courses, theme-linked learning communities, Supplemental Instruction, and incorporating instructional technology into the course. Five of 23 colleges (21.7%) reported piloting new or redesigned remedial courses, such as lecture-only and split lecture/lab mathematics courses, slow-paced or fast-track lecture mathematics courses, modularized mathematics and reading classes, courses that integrate reading and writing, courses linked to a student success class (SDV 100), and self-paced courses. Sixty percent of those colleges offering special classroom-based initiatives offer two or more courses and of the colleges that specified the discipline, 72.7% offer initiatives in mathematics courses and 27.3% offer initiatives in English courses.

Two colleges identified using modularized course offerings as a special intervention. One of these colleges indicated that the success rates in the mathematics modules ranged from 60 and 80% per semester, with students enrolled in reading modules demonstrating success rates around 90 to 100%. Additionally, retention rates were higher for these students. Another college recently terminated a pilot project that offered a four-credit, rather than a three-credit remedial mathematics course. This college found that the greater number of credits did not result in improved grades or retention for the longer seat time and consequently was changing the course's number of credits back to three hours. A second college reported similar findings in mathematics, but saw improved student performance as a result of an increase in instructional time for English. The college concluded that four-credit remedial courses increased student success rates in remedial reading and writing, but decreased student success rates in Algebra I.

Supplemental Instruction

Supplemental Instruction is peer-led tutoring assistance provided to students both in class and outside of the classroom. The peer leader, usually a student who has already completed the course successfully, provides in-class tutoring and holds tutoring workshops outside of class to further assist students. Five of 23 colleges (21.7%) described incorporating or planning to incorporate Supplemental Instruction in their remedial courses. One college reported that success rates in limited numbers of remedial mathematics class sections supported by Supplemental Instruction were about 10% higher than those in sections that were not supported by this practice.

Learning Communities

In their responses to the Remediation Survey, four of 23 colleges (17.4%) described implementing or planning to implement learning communities. Developmental learning communities are one or more remedial classes that are linked around a common theme.

The purpose of this strategy is to provide a structured learning experience in order to foster a sense of community among a specific student cohort and their teachers. One college described two kinds of learning communities targeting remedial students, specifically in writing and reading. The first learning community links the college's lowest level developmental writing course, English 1, and SDV 101, a six-week student development/orientation course. The second learning community links the higher-level developmental writing course (English 3) and developmental reading (English 5). The college reported that these two learning communities have been so successful that it is working to increase the numbers of sections of each variety during the 2007-2008 academic year.

Instructional Technology

The Remediation Survey showed that 30.4% of the colleges use or plan to use software, labs, or other instructional technology to enhance student learning in remedial courses. Of those colleges, 71.4% use or plan to use mathematics software. Colleges reported using or planning to use a number of software packages, including, Hawkes Learning Systems, Academic Systems[®], and Modumath. The colleges did not provide detail on the effectiveness of the use of instructional technology in the classroom.

Other Strategies

Four of 23 colleges (17.4%) identified other instructional strategies in the Remediation Survey, including: a holistic pedagogical approach, curriculum standardization, active and collaborative learning, instructor-provided tutoring and observation, limits on class size, mathematics study guides, and standardized reading entrance/exit assessment. The colleges indicated that these other instructional strategies are successful; however, most of them did not provide detail on the effectiveness of the strategies. Three of these four colleges also practice strategies reported frequently by the other colleges.

Several colleges described in their survey responses that they are engaged in enhancing active learning in remedial mathematics courses. One college reported that faculty are using the Classroom Response System (CRS) in many of their mathematics courses. The CRS provides instructors with automated question-answer and response gathering functionality, which offers real-time assessment of learning and allows instructors to tailor classroom instruction accordingly. This college is also focusing on the use of collaborative learning in the classroom. The college reported that its initial assessments of these two instructional strategies were promising. For the past two semesters, faculty members using these active learning strategies in Algebra I and remedial English courses have seen a dramatic increase in student success.

Student Support and Coaching

In response to the Remediation Survey, fifteen of 23 colleges (65.2%) reported some type of student support, eight of which reported two or more types of student support. Student Support services include advising and early alert, tutoring, academic learning centers and labs, and other support and coaching.

Tutoring

Although tutoring services are available on most community college campuses across the Commonwealth, only nine of the 23 colleges, nearly 40%, described offering in-person tutoring and/or supplemental academic resources, including workshops, guides, and online tutoring as a special remediation practice. Of these colleges, some reported that counselors, adjunct faculty, and student tutors work with groups or individual remedial students in and/or outside of the classroom. Several of these colleges have found that students who take advantage of instructor-provided tutoring have improved grades. Further, students who consistently receive tutoring, either voluntarily or based on grade incentives, have improved grades, improved skills during the semester, and have a higher chance of passing their remedial reading or writing course. One of the colleges reported results from a recent internal study showing that students who received tutoring (three or more visits) progressed satisfactorily to the next level at a 20% higher rate than peers who did not receive tutoring.

Advising/Personal Contacts

Five of 23 colleges (21.7%) reported academic advising and/or Early Alert systems as interventions for remedial students. However, if required placement testing and/or course registration advising is included in the definition of academic advising, then all colleges provide remedial students with varying levels of advising support. In addition to advising and early alert, colleges increased their personal contact with students needing remediation through labs/software incorporated into the course, supplemental instruction, and tutoring. Colleges that reported increased personal contacts with students through advising, tutoring, or instructor contacts found improved student performance and retention. They also found higher student satisfaction.

One of the colleges described an assistive advising pilot for remedial English and mathematics students. Instead of operating under the assumption that students will seek assistance when needed, the college included “intrusive advising” in designated course sections, which involved intervention strategies and more frequent contacts initiated by instructors and counselors. Through intake surveys of student demographics at the beginning of each semester, performance and retention data, persistence rates to the subsequent semester, and end of semester satisfaction surveys of students and faculty, the college found that remedial mathematics intrusive advising pilot sections showed higher success and retention rates than non-pilot sections. Students were also highly satisfied

with the course itself, the advising opportunities and referrals, and the instructor. Faculty involved in the pilot indicated that they developed positive relationships with students that often continued after the course was completed and believed that the pilot's benefits outweighed the time-intensive advising process. Students' persistence to subsequent semesters, as measured by continued enrollment at the college, was 75% or greater, with at least 50% of students enrolling in the next remedial mathematics course in the sequence. A similar advising pilot and study were conducted at the college in remedial English courses. The results were similar to the mathematics study results. A second college conducted studies concerning students' class attendance and found that the more remedial class sessions that the students attended, the greater the students' success. The college also found that student success could be predicted by the frequency at which the student contacted instructors, counselors, or advisors. They found that the more frequent calls and contacts that were made the more successful the students were in the class.

Other Student Support and Coaching

Seven of 23 colleges (30.4%) described having facilities such as academic/computer lab facilities and/or academic learning facilities available to remedial students outside of class time. Four of 23 colleges (17.4%) reported other types of student support, including COMPASS test preparation, *Learning and Study Strategies Inventory* (LASSI), and Life Skills/Career Coaching. One college reported that improved retention has also been identified among students who enroll in the college's success skills course early in their program of study as compared to those who delay enrollment.

Multi-practice Approaches

Four of 23 of the colleges (17.4%) indicated using multiple approaches to address the needs of remedial students, encompassing all of the different types of practices identified in the Remediation Survey (i.e. instructional assessments, instruction strategies, and student support practices). One college in particular has taken a more holistic pedagogical approach that is primarily focused on the student enrolled in remedial reading and writing courses. For example, English and reading departments have taken additional steps to ensure that faculty created a learning environment where students received the coaching and cheerleading needed to raise self-confidence and improve learning success. The college also encouraged faculty collaboration with counseling and tutoring services, with faculty involved with their students both inside and outside of the classroom. To support faculty professional development and awareness of remedial issues, the college supported and encouraged faculty's membership in the Virginia Association of Developmental Education.

Communication Practices

The Remediation Survey asked colleges to provide information on how they work with their local high schools and school divisions and how they collaborate to improve the college readiness of high school students. Based on the initial information collected through the Remediation Survey regarding the colleges' communication practices with the high schools, 11 of the 23 colleges were asked to provide additional details on their data sharing practices with the high school on student placement and remediation and how the colleges strategize with the high schools to improve the college readiness of graduating seniors.

Four communication practice areas emerged from the Remediation Survey responses: dual enrollment, communication of college readiness expectations, college readiness testing beyond placement testing required for dual enrollment students, and data sharing. Most colleges reported that communications with local school divisions on college readiness are related to dual enrollment. However, since dual enrollment students were not included in this study, the colleges' dual enrollment communication practices are not included in the analysis.

College Readiness Expectations

The Remediation Survey showed that colleges communicate with high school administrators primarily through various outreach methods, including dual enrollment coordinators, Tech Prep activities, and college career coaches that work with the high schools to assist in career decision-making. Currently there are more than 70 VCCS-employed career coaches based in over 80 high schools throughout the state.

Seventeen of 23 of the colleges (73.9%) described a minimum of at least one type of communication strategy designed to communicate expectations about college-readiness with the high schools and/or divisions. For example, the colleges described meeting with guidance counselors, joint faculty collaboration and professional development, and providing sample placement questions to guidance counselors to distribute to high school students.

Five of 23 of the colleges (21.7%) offer or plan to offer course review sessions in the high schools. Three of those five indicated that these review sessions are for mathematics. Although, most of these colleges are in the discussions phase with area high schools, only one reported actually offering a review course.

College Readiness Testing

The Remediation Survey showed that only three of 23 of the colleges (13%) administer or plan to administer placement tests to high school students beyond testing students interested in dual enrollment to measure college readiness. All three of these colleges are administering placement tests to 10th graders in at least one high school; one college is testing 10th graders in an entire school division. Another of these colleges is

implementing placement testing in all high schools in its service region and has a goal of increasing the number of non-dual enrollment students tested.

Data Sharing

The Remediation Survey showed that some colleges share placement test scores with high school guidance counselors to demonstrate students' eligibility for dual enrollment or to provide information to the high school. However, except for dual enrollment students, most colleges do not share placement scores and remediation needs with high schools in their service regions. Only six of 23 (26.1%) colleges provide the high schools with data on the remediation needs of their graduates. A few colleges reported providing data annually and/or upon request. Colleges that do provide data to the high schools do not do so systematically, nor is there any regular follow-up with the high schools.

Outside of dual enrollment, only two colleges use all communication practices identified in the Remediation Survey. Those practices include communicating college readiness expectations, conducting placement testing of non-dual enrollment students, and sharing data with the high schools. However, one of these colleges noted that their communication practices with the high schools and school divisions "can best be described as a series of informal processes rather than a set of prescriptive, formal relationships."

Summary of Findings

There were four primary objectives of this study: 1) to identify the current number of recent Virginia public high school graduates in developmental education courses at community colleges, 2) to determine the primary subject areas in which these students are enrolled, 3) to examine methods used by community colleges to determine the need for developmental education, and 4) to formulate strategies to address weaknesses before high school graduation.

To meet the objectives 1 and 2, SCHEV provided enrollment data on the current number of recent Virginia public high school graduates enrolled in remedial coursework at both two- and four-year institutions. While the SCHEV data show that approximately one in five recent Virginia public high school graduates enrolls in at least one remedial course within the first year of college, a closer look at placement test scores was needed to verify remediation needs. This study examined placement test scores to more accurately reflect the academic weaknesses of recent Virginia public high school graduates. For each year - 2003, 2004, 2005, and 2006 - the population included recent Virginia public high school graduates who entered a community college for the first time in that particular fall. Students who were formerly identified as dual enrolled were not included in this analysis. This study examined actual placement recommendations of the cohort of recent Virginia public high school graduates, not their course-taking patterns once enrolled at the community college. Enrollment patterns may differ from recommended remediation, because students may postpone enrollment in remedial education courses. Although it is strongly recommended, students who test into remedial education are not required to take the course(s) in their first semester, or even in their first year in college.

During the last four years, approximately four out of five (about 81%) of incoming community college students who recently graduated from a Virginia public high school took one or more COMPASS placement tests in reading, writing, and/or mathematics. The remaining population of students either qualified for an exemption to the placement exam based upon the policies outlined by the college or took the paper-and-pencil placement exam (ASSET) which removed them from the cohort.

The study determined that:

- Students in the cohort were more likely to place into college-level reading (about 68%) than college-level writing (about 55%); however, they were least likely to place into college-level mathematics (about 33%).
- The number of students who required remediation in mathematics doubled the number that required English or writing remediation.

- Over the four years examined, reading recommendations stayed constant, while writing recommendations dropped 6% (48% to 42%) from 2003 to 2006 and mathematics recommendations declined 3% (68% to 65%) from 2003 to 2006.
- In 2003, four in five students (81%) received recommendations to take at least one remedial course. There was a 2% gain from 2003 to 2006 (19% to 21%) in students determined to be college-ready; placement into college-level coursework in mathematics, English, or writing.

To meet objectives 3 and 4, the Remediation Survey collected information on how Virginia's community colleges are addressing remediation at their institutions. Once students are placed in a remedial course, over half of the colleges administer some type of post-placement instructional assessment test to students after their initial placement into remedial courses. Beyond post-placement assessment, all colleges reported that they utilize at least one special remediation practice to enhance student success. The three most prevalent special remediation practice types reported by the colleges are pre-testing (instructional assessment), the use of instructional technology (instructional strategy) as part of the course, and tutoring services (student support).

The community colleges have implemented new or redesigned courses and initiatives to address remediation needs, including: modularized and integrated courses, theme-linked learning communities, Supplemental Instruction, and the use of instructional technology as part of the course. Student support and coaching include: advising and early alert, tutoring, academic learning centers and labs, and others. Many colleges have begun internal studies on the impact of these special programs on student success in remedial coursework.

The results of this study highlight the need for increased communication between colleges and their local school divisions. Only 26% of the colleges provide the high schools with data on the remediation needs of their graduates. The majority of the communication between colleges and their local high school divisions centers on dual enrollment. New programs, such as career coaches, have initiated dialogue that includes the preparation of the broader population of high school students. In order for high schools to better prepare their students for postsecondary coursework, it is essential that the high school faculty and administrators understand the academic expectations in college courses and communicate those expectations to their students. The alignment between the high school curriculum and the expectations in entry-level academic courses in postsecondary institutions needs to be examined. A number of strategies need to be employed across sectors to assist students in their transition from high school to higher education.

Recommendations

This report points to the need for increased collaboration among all education partners in the Commonwealth with a focus on student preparation for college and the workforce. More research is needed to identify strategies that work for students before they leave the K-12 system. Both the K-12 and postsecondary sectors should continue discussions about curriculum alignment and the recommended course-taking patterns for students as they prepare for college and the workforce. The following set of recommendations is intended to set a framework for future collaboration.

- 1. Review current data collection structures across higher education and K-12 sectors in Virginia and make recommendations as to how the structure might be improved to create a more robust reporting system that will allow institutions to better prepare students for higher education during their time in high school.**

The results of this study highlight the need for the ability to share student data among the VCCS, the Virginia Department of Education and local public school divisions. It is recommended that all parties begin the development of data sharing agreements with guidance from Virginia's Office of the Attorney General so that future studies can be more comprehensive in scope. The effort to develop a comprehensive virtual data system in Virginia is underway as a result of the recommendations from the Governor's P-16 Council. This report endorses those efforts and underscores the importance of a comprehensive data system as future research is undertaken in this area. Furthermore, the importance of this effort is such that all of Virginia's colleges and universities, public and private, should be involved.

- 2. The VCCS should reexamine the COMPASS cut-off scores used by the colleges for placement in developmental coursework as well as student success in subsequent courses in the English and mathematics pipeline.**

As a result of the study, a renewed focus has been placed on COMPASS cut-off scores and their role in placement practices. The current VCCS policy allows the colleges to determine the cut score for placement within an agreed upon Decision Zone. It is recommended that an internal VCCS study be conducted to reexamine the current range of cut scores, the course placement based on those scores, and student success in subsequent courses in the English and mathematics pipeline. These results should be disseminated to the colleges to be used for future discussions about placement in the VCCS. This study should be completed prior to the evaluation of placement tools and the need for a diagnostic component in the placement process.

- 3. The VCCS, the Virginia Department of Education, and local public school divisions should collaborate on a broader, long-term, on-going remediation study that includes high school student-level data.**

In order to draw conclusions about the best high school preparation for higher education, the study should examine high school student course-taking patterns as well as student success in high school courses. While this area is receiving a great deal of public attention, there is very little existing information available on the alignment of current high school standards and college curricula. Standards vary from college to college and few of the colleges include high school course-taking as part of their internal developmental education research studies. A more robust reporting system will allow colleges and local school divisions to better prepare students for college during their time at the high school. Such a system will also allow policy makers to have a complete perspective of high school curricula, high school standards and college expectations so that policies can be developed to increase college readiness and enhance student success in postsecondary education. A move to data-driven decision-making will provide a more comprehensive means of developing Education policy across the Commonwealth.

- 4. The VCCS should reexamine the use of COMPASS as the system’s primary course placement tool in light of the results of this study. In the recommendation for adoption, the system should also consider the diagnostic component of the tool as a necessary part of the implementation.**

Placement should be a multi-source decision point so that college faculty can rely on many sources of data to make decisions about student placement. This study highlighted some weaknesses of COMPASS as a placement tool. Many of the colleges (over half) employ some form of post-placement instructional assessment test to students after the initial placement into developmental course(s). Few of the colleges utilize the COMPASS diagnostic component to determine specific areas of academic weaknesses. The VCCS should review the current placement tool as well as others that are available, including those with a diagnostic component, and make recommendations about the tool that should be adopted by all colleges for future use.

- 5. The VCCS should disseminate best practices in remediation to all 23 colleges. Model academic programs, instructional practices, and student support services should be highlighted.**

This study highlighted a number of strategies employed by Virginia’s community colleges to increase student success in developmental courses. Almost all of the community colleges employ at least one “special” instructional or student support remediation practice used specifically in English and mathematics developmental courses. The range of support practices was wide and many of the colleges have developed innovative programs to bolster student success in developmental courses. These innovative instructional and student support remediation practices should be compiled and shared as best practices across the system. A team comprised of representatives of the colleges that employ innovative practices should be assembled to create a web-based resource for all colleges. This team should also present successful programs to the academic and student service administrators. This team may continue to develop and pilot additional innovative practices in remediation and monitor success to determine whether future implementation across the system is feasible.

- 6. Virginia Department of Education and the VCCS should identify and disseminate model communication strategies between colleges and local school divisions and encourage an increased level of collaboration between local school divisions and their local community college.**

The results of the study reveal that student success is positively impacted by increased collaboration among colleges and local school divisions. Early detection of the need for remediation allows students to supplement their high school curriculum as needed and thus increase the likelihood of graduating from high school prepared for college-level coursework. Other areas of the student profile that can be examined to determine college readiness include GPA, class rank, Standards of Learning (SOL) scores, other standardized test scores, and diploma type. Early detection and communication of college readiness criteria are reliant upon a close working relationship among the colleges and the school divisions in their service regions. The Virginia Department of Education and the VCCS should develop a means to distribute model collaborations between individual community colleges and local school divisions across the Commonwealth. Increased collaboration between colleges and school divisions should be encouraged and supported.

- 7. Virginia Department of Education should disseminate results of the study to local school divisions along with a set of recommendations on how to use the results of the study to better prepare students for higher education.**

The Virginia Department of Education should develop a set of recommendations for local school divisions based upon the results of the Academic Weaknesses Study. The Department should highlight those high school divisions that have developed model relationships with local colleges and distribute programs that have been proven to be successful. The recommendations for high school preparation should be developed by the Virginia Department of Education and local school divisions. Higher education institutions should collaborate and serve to inform the discussion.

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Appendix A

Remediation Survey

The initial Remediation Survey email correspondence provided to all 23 of Virginia's community colleges is included in full below.

As part of a National Governors Association grant, the VCCS is preparing a report on the academic weaknesses and remediation needs of Virginia High School students. You have been identified by your college's administration as a contact person to assist with providing information for this report. We need your cooperation in collecting information regarding placement and remediation policies/activities at your college and any outreach activities with your local high schools and school divisions.

Please provide details on the questions below. Your responses are needed by Wednesday, March 7, 2007.

1. What methods do you use to determine the need for developmental education? Who takes COMPASS? Who takes ASSET and under what circumstances? How many years have you used these instruments?
2. Do you enter placement scores into PeopleSoft? If so, is this process automated or done manually?
3. Do you have any special remediation practices in the following developmental courses: Math, English (Reading or Writing)? If so, how successful are they? For ex: Are you using the COMPASS diagnostic data to facilitate remediation?
4. If a student's placement scores indicate he/she needs developmental Math and/or English is this placement required (i.e., a prerequisite to college level course work)? If so, how do you enforce it?
5. Have you conducted any studies on developmental education? If so, what were your findings?
6. How do you work with your local high schools and school divisions to address the remediation needs of students and the issues of college readiness?

Your assistance is greatly appreciated. Please contact me with any questions you may have.

Thank you,
Kristine

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Remediation Survey Follow-up

The follow-up email sent to 11 of 23 colleges in order to obtain more detail about the colleges' communication practices with the high schools is included in full below. These colleges identified a feedback loop with the high schools that addressed college readiness in their responses to the initial survey questions.

I have several follow-up questions for the VCCS study regarding your work with area high schools to address remediation and college readiness. For your reference, I have included your response to question 6 (work with local high schools) at the bottom of this email.

Please provide responses to these follow-up questions by COB Wednesday, March 21.

7. Outside of dual enrollment, how often do you provide data on student placement and remediation at your college to the high schools in your service area?

How do you report the data to the high schools? Please provide details. Is there follow-up communication between your college and the high schools on the report's contents?

8. Is your college working with the high schools to strategize on how to improve the college readiness of graduating seniors? If yes, how so? Please provide details.

Whose role is it at the college to communicate this information and dialogue with the high schools?

9. Would you like to share any additional information on your process?

Your assistance is greatly appreciated. Please contact me with any questions you may have.

Thank you,
Kristine

Question 6 - How do you work with your local high schools and school divisions to address the remediation needs of students and the issues of college readiness?

Appendix B

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