

Pre-College (Remedial) Course Taking in Washington Postsecondary Education: Causes and Solutions

A Report Submitted to the Washington State Legislature by the State Board for Community and Technical Colleges, the Office of the Superintendent of Public Instruction, and the Higher Education Coordinating Board

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SUMMARY

- Placement test results show that 88 percent of recent high school graduates who enter Washington state public baccalaureate colleges or universities are prepared for college-level work. However, 55 percent of recent high school graduates who enroll in community and technical colleges must take one or more pre-college (remedial) courses. Remedial course-taking by recent high school graduates represents two percent of the total state- and contract-funded enrollment in two-year colleges.
- The most common deficiency is math. Fifty percent of the high school graduating class of 2002 needed a remedial math class when they enrolled in a community or technical college.
- Existing statewide data are inadequate to tell the whole story, but system experts believe that the core issues are *communication, student preparation and planning, assessment, curriculum, and teaching methods*.
- Higher education institutions and agencies are already implementing a number of responses to the problem, most notably the Transition Mathematics Project and communication initiatives to inform counselors, students and parents about the importance of taking more rigorous math in high school, and taking math in the senior year so that math skills are fresh when students enroll in college.
- The Higher Education Coordinating Board (HECB) is also working on two fronts to improve student readiness for college and reduce remediation. The HECB this month approved a review of its current minimum basic admission standards for freshmen at public four-year institutions, and has recommended requiring applicants to complete more rigorous math and science coursework in high school. Revisions to the state's minimum admission standards, if adopted, would take effect with the freshmen class entering college in 2008.
- In accordance with its 2004 Strategic Master Plan, approved in July, the HECB will also develop a comprehensive definition of college readiness in the academic subject areas required for college preparation. This definition of readiness will lay out the key competencies—what students must know and be able to do—required for success in college.
- System experts' recommendations include:
 - gathering better data to more precisely define the problem with specific kinds of students,
 - making better use of information-sharing to shape school district policies,
 - improving public school guidance programs to help all students make better decisions about what courses they take and how they prepare for life after high school,
 - encouraging curricular innovations for the high school senior year and the summer transition from high school to college to provide a review and skills “refresher” opportunity for students.

BACKGROUND

Substitute Senate Bill 5139, passed by the 2004 Legislature, asserted that “insufficient progress has been made in reducing the proportion of recent high school graduates who must enroll in remedial or pre-college classes at Washington's public colleges and universities.” The legislation directed education agencies to “place a higher priority on their work to address the issue of remediation and take concrete steps to make measurable improvements.” Specifically, the bill directed the State Board for Community and Technical Colleges, the Office of the Superintendent of Public Instruction, and the Higher Education Coordinating Board to convene a work group that would address the questions below and provide a summary report to the Legislature by December 15, 2004.

By agreement among the agencies involved, SBCTC staff took the lead in organizing the work involved in responding to SSB 5139. Two discussions have been held – one on issues related to math, one on reading and writing. Both discussions involved K-16 faculty, administrators, and other policy staff with expertise in the areas addressed. (see Appendix 1 for a list of participants). The key questions addressed by the groups were defined by the language of SSB 5139:

- (a) What are some of the major causes of current gaps in the skills of recent high school graduates entering college?
- (b) What are some strategies for communicating to all Washington high schools the standards and expectations for the knowledge and skills high school graduates need for college-level work?
- (c) What are some innovative strategies currently used by school districts and other initiatives or programs designed to provide high school graduates with the knowledge and skills needed for college-level work?
- (d) What are some actions K-16 educators can take to address the gaps in knowledge and skills so that the need for remediation of recent high school graduates in public higher education institutions is significantly reduced?
- (e) What are some benchmarks that could be used to measure the reduction in the remediation of recent high school graduates over the next three years?

This report provides context and a brief overview of the remediation problem, and then addresses these questions.

CONTEXT AND SCOPE OF PROBLEM

Placement Tests: As “open door” institutions, community and technical colleges provide educational opportunities for all adults regardless of their educational background. However, access to many required courses may depend upon successful completion of pre-college course work. To assure student success, colleges require that all entering degree-seeking students take one or more placement exams prior to taking math and English classes. Most commonly colleges use one of three tests:

- The College Board’s Accuplacer (<http://www.collegeboard.org/accuplacer/html/accupla1.html>)
- ASSET (<http://www.act.org/asset/index.html> developed by ACT)
- COMPASS (<http://www.act.org/compass/index.html>) developed by ACT

Washington’s four-year colleges (except The Evergreen State College), use tests administered by the Academic Placement Testing Program (AFTP), a cooperative program for the state's four-year public universities. The test results help students and their university advisers select the mathematics courses for which they are best prepared.

Placing in and Succeeding in Pre-College Classes: Most high school graduates who need pre-college course work attend community and technical colleges. A substantial number of these entering students “place” in pre-college courses (courses above the 9th grade level, but below college), especially in pre-college math – math up to Algebra II (intermediate algebra¹) courses or their equivalents.

Students pay the same tuition for pre-college classes as college-level courses, and the courses do not apply to the student’s degree credits. This is likely to extend the time it takes to earn a degree and make it more difficult for students to schedule other programs and courses.

Nonetheless, it’s important to note that most students succeed in remedial courses, and in the follow-on college-level courses. A study of recent baccalaureate graduates found that 56 percent of those who started at the community and technical colleges had taken a pre-college course, most often math. Those students graduated at high rates in all major fields, and with senior-year GPAs comparable to students who did not take pre-college courses.

The colleges and universities in Washington—two-year and baccalaureate alike—agree that high school graduates can complete their college programs in the least amount of time and at the lowest cost by following the recommended college-bound course requirements while in high school. Completing the college-bound course requirements begins by doing well on the Washington Assessment of Student Learning (WASL) in the 10th grade, and then building on that foundation by taking challenging coursework with a continued emphasis on reading, writing, and mathematical reasoning. This curricular recommendation applies to students planning to complete a two-year professional technical associate degree as well as those planning to complete a bachelor’s degree.

Students in high school should complete – at a minimum – the equivalent of intermediate algebra (algebra II). Students should continue with math—or a math-intensive science class—during their senior year. Completing challenging math courses in the senior year provides students with the best opportunity to enter college with the pre-college math skills critical to success in first-year college-level courses. (For more detailed information about those skills, see <http://www.transitionmathproject.org>).

¹Community and technical colleges, like baccalaureate institutions, regard students as ready for college-level math after successful completion of **intermediate algebra**. Some technical degree programs can be completed without first taking intermediate algebra, but many technical degrees and all programs designed to prepare students for baccalaureate institutions require math or other quantitative skills above the level of intermediate algebra.

Role of Pre-College: Last year, nearly 75,800 community and technical college students took at least one pre-college course (19 percent of all students). The typical student taking pre-college courses is an older adults who enrolls in one such class along with one or two college-level courses (a common pattern would be: Intermediate Algebra, College Composition and Spanish 101).

Consequently, pre-college course work accounts for eight percent of total FTE students. Most students take pre-college courses because they have been out of high school or college for several years and thus need to refresh their skills. The pre-college coursework taken by students within the first three years after high school graduation accounts for two percent of state- and contract-funded FTE students.

Recent High School Graduates Taking Pre-College Courses: While only a small portion of community and technical college students in any pre-college class are recent high school graduates, their enrollment is of particular interest because of the relatively high rate of recent high school graduates who need such courses (for additional data, see Appendix II).

- 31 percent of Washington high school graduates (18,863 last year) enroll immediately in community and technical colleges, and an additional 16 percent enroll within one or two years after high school graduation. Within three years of high school graduation, nearly half of all high school graduates have enrolled at a community or technical college in Washington.
- Fifty five percent of 2003 high school graduates who enrolled in Washington two-year colleges took at least one pre-college (remedial) course.
- Most of this pre-college work is in math – 49 percent of all recent high school graduates.
- The majority of high school graduates coming to Washington two-year colleges—more than 15,000 students—are well prepared in writing, with 81 percent placing in college-level Composition.

Faculty at some two-year colleges believe that the overall numbers may underestimate the extent of the writing and reading problems they encounter with recent high school graduates, both in pre-college courses and in college-level Composition courses. System data suggest that students whose native language is something other than English represent a significant portion (up to 30 percent) of these problems. In any case, course placement data show that math represents a more pressing concern.

For the public baccalaureate institutions, the numbers are considerably lower but the pattern remains comparable to the community and technical colleges.

- Some 10,593 2002 high school graduates enrolled in Washington public four-year colleges and universities in the 2002-2003 academic year (the most recent data available). The vast majority of these students were well prepared for college-level work.

- Some 1,219 students (12 percent) enrolled in at least one pre-college class in their first year at a baccalaureate institution.
- Most of that group – 940 students– enrolled in a pre-college math course.

Expenditures Related to Pre-College Course Taking in Community and Technical Colleges: The community and technical colleges charge the same tuition for remedial and college-level courses. The two-year college system in 2003-04 spent an estimated \$55.5 million on pre-college courses for all students. This includes \$29.4 million in direct instructional costs and another \$26.1 million on indirect costs such as administration, plant, libraries and student services.

These expenditures primarily served adults returning to college many years after high school. The students in this report – recent high school graduates taking pre-college courses – represented just under two out of every 10 students in pre-college courses (10,371 students attending immediately after high school plus 3,600 recent graduates who delayed enrollment in college until one or two years after high school out of a total pre-college headcount enrollment of 74,793 individuals of all ages.)

With 12,586 state-supported pre-college FTEs served last year, the average expenditure per FTE equaled \$4,411. These are tuition-paying students and these cost figures include both state general funds and tuition. The recent high school graduates (both those attending immediately after high school and those attending after a year or two delay) represented 3,055 FTE and a total expenditure of \$13.5 million or 24 percent of the pre-college expenditures.

MAJOR SOURCES OF THE PROBLEM

Communication: Students, parents, and many K-12 teachers and counselors often do not have sufficient and timely information regarding preparation requirements and what’s expected in order to succeed in college, especially community and technical colleges. Many do not realize that two-year colleges have the same requirements as four-year colleges in math.

Student Preparation and Planning: Many students, particularly those who attend community and technical colleges, do not get the guidance or information they need to plan for college during high school, and do not take college-track coursework. As a result, they often leave high school lacking the skills required for college-level work and are not prepared for the faster pace of college classes.

Assessments: The variety of placement tests used by higher education may be confusing for students, parents, and K-12 educators as they consider what’s required for college preparation. There is concern about format and goal differences between the WASL and placement tests used by higher education.

Curriculum: There is a lack of cross-sector understanding, and possibly a lack of alignment, between secondary and postsecondary student expectations and specific learning outcomes, especially in math courses.

Professional Development for Teachers: For math in particular, there is a need for more and better content-specific professional development on good standards-based curricula and teaching strategies. For reading and writing, there are significant workload issues for teachers, raising questions about how much and what kind of writing is actually assigned in middle school and high school for the full range of students.

POSSIBLE SOLUTIONS

Current Activities: The State Board for Community and Technical Colleges, the Office of the Superintendent for Public Instruction, and the Higher Education Coordinating Board all recognize that these problems take systemic and long-term strategies to address. All three agencies are working together, along with the Council of Presidents, to give the remedial issue a higher profile and to find solutions. Specifically in the area of math, the agencies are investing extensive staff time and resources on the Transition Math Project (<http://www.transitionmathproject.org>), a statewide effort jointly funded by the Legislature and the Bill & Melinda Gates Foundation, as the central vehicle for addressing remediation issues in the area of math. The Higher Education Coordinating Board has also set in motion proposed revisions to the state's minimum basic admission standards for freshman, requiring more rigorous coursework in mathematics and science in high school. Furthermore, the HECB will be working to define college readiness not simply as a set of required courses, but as a set of critical knowledge and abilities (competencies, if you will) that students must have to be ready for successful postsecondary study. This new definition is slated for final adoption by the HECB in December 2006.

In addition, a number of existing activities have been identified as currently being taken either locally by individual colleges/school districts or statewide to reduce the level of remedial course-taking among recent high school graduates:

Communication:

- Providing clear and detailed information in the Washington Council's Higher Education book, provided to all high school counselors around the state, about the math requirements for two-year college programs
- Distributing "Got Math?" brochure to all Washington high school juniors, promoting need for taking more and more rigorous math courses in senior year

Student Preparation and Planning:

- Developing learner/worker/citizen guidance curriculum that helps middle and high school students plan their futures
- Allowing students to take placement exams in high school so that they can prepare, for college and understand college-level expectations

Assessments:

- Examined higher education placement tools and the Washington Assessment of Student Learning (WASL) to analyze the alignment of item content and format
- Incorporating information about high school math courses (what, when, grade) into college course placement decisions

Curriculum:

- Pairing study skills or college success courses with content area courses in a 10-credit learning community to provide a more effective skills foundation for students as they enter college
- Providing Jump Start program between summer and fall quarters for borderline students based on placement test scores

Professional Development for Teachers:

- Providing collaborative training efforts for teachers of Composition (high school, colleges and universities) to help create closer alignment in curriculum approaches
- Promoting cross-sector faculty sharing of syllabi, textbooks, and assessments in common courses (e.g., pre-calculus, intermediate Algebra/Algebra II)

Recommendations for Additional Strategies: The work groups generated a list of strategies that could be pursued in each of the areas representing key sources of the remediation problems. Some examples:

Communication Issues:

- Identify and use existing points of contact with students and parents—around WASL, student/parent conferences beginning in elementary school, “College nights,” etc.—to send clear messages about the demands of college (2-year and baccalaureate institutions) and why, in today’s economy, all students will need some form of post-secondary education and/or job training
- Conduct more and wider discussions about the annual college remediation reports (see <http://www.sbctc.ctc.edu/data/data.asp#DevEd> for the latest statewide summary, with each school district being provided its own specific data), especially with high school principals

Student Preparation and Planning:

- Increase and improve peer tutoring efforts
- Build on “13th-year Plan” requirement to develop better course planning in high school
- Improve student guidance curriculum so that ALL students are prepared for success after high school

Assessments:

- Examine higher education placement tools and the College Readiness Standards to analyze the alignment of item content and format
- Offer early diagnostic placement assessments in high schools more widely across the state

Curriculum:

- Offer a “refresher” math course during senior year built around the College Readiness Standards
- Initiate Composition/Reading Transition Project (similar to math effort), and pursue cross-sector collaboration around specific reading and writing approaches/issues in context of other courses

Professional Development:

- Provide more focused in-service training for teachers on remediation, retention, learning theory, and intervention strategies for students who don’t meet the standards
- Use resources of Educational Service District offices to help teachers understand problem and ways to address it

Organizational Issues:

- Reduce class sizes for 9th and 10th grade math courses to allow for more individualized work with students
- Integrate efforts to enhance student readiness for college and workplace into SIP (School Improvement Plans) process
- Promote and encourage more local and regional K-16 faculty-to-faculty partnerships focusing on targeted efforts to improve student achievement in math

Possible Benchmarks: Better K-16 data-collection and data-sharing are needed to understand which students, following which particular patterns of course-taking in high school, seem to have the most significant problems when entering college. In the meantime, available data can continue to be tracked to measure overall reductions in postsecondary remediation of recent high school graduates, including information from:

- pre-college and remedial education reports on recent high school graduates done annually by the State Board for Community and Technical Colleges (see <http://www.sbctc.ctc.edu/data/data.asp#DevEd> for details) and by the public baccalaureate institutions and shared with building principals and superintendents across the state
- reports provided to high schools by the Advanced Placement Testing Program run by the public baccalaureate institutions in Washington

- various local and regional efforts, including efforts by OSPI to encourage replication of a coherent, comprehensive guidance curriculum invented by the Franklin Pierce School District that has increased student enrollment in rigorous math and science classes

The work groups also suggested that we consider some additional specific studies to help guide next steps in addressing the remediation issue:

- Expand the small pilot study examining the relationship of first-year college-level performance with performance on the WASL and on college placement tests
- Gather data on high school student perspectives to identify key student attributes and background characteristics that influence both choices about and performance in high school math courses
- Explore the perspectives of recent high-school graduates enrolled in pre-college courses to confirm or challenge our operating assumptions about their circumstances and rationales.

While acknowledging that the issues involved are complex and that addressing the problem requires multi-faceted and sustained collaborations, the key agencies involved—the State Board for Community and Technical Colleges, the Office of the Superintendent of Public Instruction, and the Higher Education Coordinating Board—believe that significant work is already underway, particularly the Transition Mathematics Project. Everyone is committed to working together with the Legislature to seek effective and feasible long-term approaches to reducing the amount of remedial course-taking by recent high school graduates in Washington.

Appendix I

Reading/Writing Work Group Participants (at South Seattle Community College, October 14, 2004)

FIRST NAME	LAST NAME	INSTITUTION:
Patti	Anderson	Franklin Pierce SD
Kathy	Barker	Grays Harbor Community College
Linda	Beath	Central Washington University
Lynn	Briggs	Eastern Washington University
Kim	Chapman	North Seattle Community College
Laura	Coghlan	The Evergreen State College
Larry	Davis	State Board of Education
Pam	Dusenberry	Shoreline Community College
Terry	Duty	Tahoma HS
Doug	Emory	Lake Washington
Ken	Etzkorn	University of Washington
Barbara	Haas	Edmonds Community College
Diane	Hanson	Grays Harbor Community College
Sally	Hanson	State Board for Community & Technical Colleges
Robin	Jeffers	Bellevue Community College
Brian	Jeffries	Office of the Superintendent of Public Instruction
Laura	Kohn	Gates Foundation
Laurie	Laughery	Grays Harbor Community College
Ruth	Lowe	Wenatchee SD
Anna Sue	McNeill	State Board for Community & Technical Colleges
Doug	Meyer	Yelm SD
Bill	Moore	State Board for Community & Technical Colleges
Cindy	Morana	Council of Presidents
Joan	Nealley	Spokane Falls
Carol	Perdue	Green River Community College
Simin	Pouya	WSCA
Diana	Pratt	Kentlake HS
Lauren	Servais	Cascadia Community College
Jane	Sherman	Washington State University
Tim	Stensager	Franklin Pierce SD
Russell	Tiberii	Western Washington University
Tom	Versteeg	Spokane Falls Community College
Jennifer	Vranek	Partnership for Learning
Tim	Washburn	University of Washington
Bryan	West	Spokane Falls
Cindy	Wilson	Pierce Ft. Steilacoom

Math Work Group Participants

(at the Transition Math Project Summer 2004 Institute)

First Name	Last Name	Representing:
Katy	Absten	K-12
Ida	Baird	K-12
Linda	Beath	Central Washington University
Sandra	Bennett	K-12
Richard	Britz	The Evergreen State College
Helen	Burn	Highline Community College
Karen	Casto	Western Washington University
Sandy	Christie	K-12
Matthew	Conroy	University of Washington
Ron	Dalla	Eastern Washington University
Diane	Downie	Pierce College
Sue	Eddins	Achieve, Inc
Kaye	Forgione	Achieve, Inc
Tony	Forsyth	Tacoma Community College
Vauhn	Foster-Grahler	The Evergreen State College
Al	Friedman	Everett Community College
Michael	Gilbert	Eastern Washington University
Jane	Goforth	North Seattle Community College
Jim	Hamm	Big Bend Community College
Brinn	Harberts	Big Bend Community College
Carol	Hattan	K-12
Brian	Heaven	Olympic College
Cinnamon	Hillyard	University of Washington-Bothell
Donna	Huck	K-12
Robin	Jeffers	Bellevue Community College
Rick	Jennings	Office of the Superintendent of Public Instruction
John	Johnson	K-12
Tim	Keely	Tacoma Community College
Bill	Kring	K-12
Paul	Kurose	North Seattle
Jane	Lane	Eastern Washington University
Kristine	Lindeblad	K-12
Sue	Long	K-12
Michael	Lundin	Central Washington University
John	Martens	Centralia College
Theresa	Martin	Eastern Washington University
Lydia	McKinstry	The Evergreen State College
John	McLain	Higher Education Coordinating Board
Cindy	Morana	Council of Presidents
Ed	Morris	Highline College

First Name	Last Name	Representing:
Paul	Muckerheide	K-12
Joanne	Munroe	Whatcom Community College
Bev	Parnell	Yakima Valley Community College
Melody	Pecha	K-12
Eunice	Robb	South Puget Sound Community College
Don	Rogers	K-12
Joel	Schaaf	Lower Columbia College
Paula	Schofield	The Evergreen State College
Erik	Scott	Highline Community College
Jane	Sherman	Washington State University
Jenni	Taggart	University of Washington
Linda	Thornberry	K-12
Jennifer	Vranek	Partnership for Learning
Ginger	Warfield	University of Washington
Rosalind	Wise	K-12

Appendix II

Statewide Trends in Pre-College Course-Taking by Recent High School Graduates Attending Community and Technical Colleges

	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Pre-College Math	8,005	8,365	8,557	8,938	9,013	9,180
% Taking Pre-College Math	47%	48%	49%	48%	50%	49%
Pre-College Writing	3,510	3,711	3,608	3,715	3,639	3,671
% Taking Pre-College Writing	20%	21%	21%	20%	20%	19%
Pre-College Reading	1,657	1,792	1,779	1,832	1,781	1,986
% Taking Pre-College Reading	10%	10%	10%	10%	10%	11%
Any Pre-College Course	9,252	9,648	9,817	10,219	10,232	10,371
% Taking Any Pre-College	54%	56%	56%	55%	57%	55%