Cutting Back on Catching Up:
Reducing the Need for Remediation in Colorado Higher Education

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A recent study by the Colorado Commission on Higher Education reveals that 26.6% of Colorado public high school graduates entering Colorado public higher education in 2002-2003 were assigned to remediation, and of those:

- 45.1% were assigned to remediation in reading
- 44.1% were assigned to remediation in writing
- 85.3% were assigned to remediation in math
- 25% were assigned to remediation in all three subjects

Remediation in college for high school graduates cost the state an estimated $18.9 million, at least, in the 2002-2003 school year. This was roughly 55.1% of the total cost of educating remedial students. The other 44.9% ($15.4 million) was expected to come from student tuition. However, because some student tuition was generated by state grants and scholarships, the state also absorbed some of the $15.4 million tuition bill. The state and students combined paid an estimated $34.3 million for remedial education in 2002-2003.

The Colorado Commission on Higher Education has approved a policy that requires most high school students graduating in the spring of 2008 to complete a core curriculum consisting of English, math, social science, natural science, and academic electives before entering Colorado public four-year colleges.

Additional requirements will apply to 2010 high school graduates.

The new standards are important for all students who desire to attend college because a challenging high school core curriculum has been shown to be “the single most significant factor in determining a student’s success in college,” even overcoming racial gaps and socio-economic circumstances. A strong core curriculum can reduce remedial rates in higher education and prepare students for success after high school.

In addition to seeing that students receive a solid foundation in the basics starting in kindergarten, the following changes must occur in order to reduce the need for remedial classes among Colorado’s recent public high school graduates:

- The Colorado legislature must pass legislation that requires school districts to notify parents of the college admissions standards before students register for 9th grade
- Middle and high school counselors and teachers must encourage potentially college-bound students to take the classes that will prepare them for college-level work
- Schools must ensure that students have access to core curriculum classes
- Students must rise to the challenge of more rigorous high school classes
Defining Remedial Level Coursework

In place of or in addition to the word “remediation,” some colleges use the term “Developmental Education” to describe the department that specializes in remediation (and some argue that this is a more accurate term because students are not “re-learning,” but rather are learning new material not taught to them in high school). Other institutions refer to remedial classes as “basic skills” classes.

In August 2000, The Colorado Commission on Higher Education (CCHE) defined what remedial courses in Colorado colleges should look like. The courses in reading should focus on “non-technical vocabulary, word identification, and reading of everyday material.” Writing courses should “concentrate primarily on grammar, word usage, [and] punctuation.” Remedial classes in math should cover “concepts introduced in elementary algebra, geometry, and intermediate algebra,” including solving word problems by arithmetic, performing simple equations, and finding information on a graph. Remedial classes teach basic skills that are necessary prerequisites for success in college. This is particularly true of reading skills, which enhance every area of study.

Who Needs Remediation?

Remedial classes are not just for ill-prepared freshmen who come to college straight from high school. They are also for students who decided to go to college years after leaving high school. The more time a student takes between leaving high school and entering college, the more the student will have to brush up on basic skills. Remediation is valuable to older college students as well as to recent graduates who lack basic skills. However, the rates of remediation among recent Colorado high school graduates should cause concern.

For the 2002 Colorado public high school graduates who entered Colorado public higher education in 2002-2003, CCHE reports that 26.6% were assigned to remediation (7,507 students). Forty-five percent of the 26.6% assigned to remediation required assistance in reading, and 44.1% of them needed help in writing. Twenty-five percent of the assigned students were assigned to remediation in all three subjects. Of the students assigned to remedial classes 85.3% were in need of remediation in math. That is, 22.7% of the 28,203 recent public high school graduates attending Colorado public two- and four-year colleges needed help understanding basic math.
The figures above may underestimate the number of students who leave high school needing remediation. First, the numbers cited above do not necessarily account for students who received remedial education out-of-state, online, or at private colleges or universities. Only 38% of Colorado’s recent high school graduates enrolled in a Colorado public college in 2001.

Second, the remediation rates do not account for students lacking basic skills who dropped out of high school or did not continue on to higher education. Jay Greene of the Manhattan Institute believes remediation rates do not give the whole story of how well high schools prepare students for post-secondary life because they “don’t tell us how many students failed to make it to college at all because they were inadequately prepared.”

The Cost of Remedial Education in Colorado

In this state, as in others, it is difficult to calculate the exact costs of remedial education but some claim the cost is not exorbitant. Hunter Boylan, director of the National Center for Developmental Education, states that whether the total national cost of remedial education is $500 million or $2 billion the spending accounts for no more than two percent of the annual national higher education budget. He argues that policymakers over-react to the cost because states do not necessarily pay twice for instruction by funding remediation. Of the 63% of high school students who went to college in 1996-1997, only 43% of them took the full college preparatory course of study in high school. He concludes that many college students simply have not had the material that they learn in remedial classes. This should cause alarm. Why are students not learning the material in high school if it is clearly “pre-collegiate” level subject matter? What are students studying in high school instead?

Another argument is that remedial education spending is an investment. Philip Day, Jr. and Robert McCabe claim that money spent educating students reduces the likelihood of future dependency on social programs such as welfare and prison. The argument is valid to a point. Students should have access to remediation if they need it. It is better for a person to take remedial courses than to take welfare checks. But an even better investment is teaching students basic skills in high school so they do not have to waste time and money on high school level coursework in college. The time and money should be spent taking college level courses or perhaps finding a job using those basic skills learned in high school.

CCHE estimates that the cost to the state of remedial education for recent Colorado public high school graduates was between...
$18.9 and $21 million in 2003. This was more than half of the total cost of remedial classes. In 2002-2003, Colorado community colleges received 55.1% of their revenue for educating students from the state, while the other 44.9% was generated by in-state student tuition. (The community colleges figure is used because they offer the bulk of remedial classes. Colorado law states that only community colleges, Mesa State College, and Adams State College may offer such classes.) Using the conservative estimate, the state paid $18.9 million (55.1%) for remedial classes which means tuition paid was approximately $15.4 million (44.1%). Altogether, the state and students shelled out approximately $34.3 million for remedial classes in 2001.

However, the cost of remedial classes to the state was certainly higher and will continue to rise with inflation. The low estimate of $18.9 million excludes students who returned to college later in life. The figure also does not count state-funded scholarships and grants that were used to assist students who could not pay full tuition on their own.

**Colorado’s Plan**

CCHE examined policies that can potentially increase student success in college. While the Commission can only change policies within higher education, CCHE hopes that high schools will follow the example of the colleges in raising standards.

CCHE approved a policy that will raise the standard in admissions requirements at Colorado four-year colleges and universities. (Community colleges and Metropolitan State College of Denver have open admissions.) Explaining the change, CCHE stated, “The course-preparation requirements are based on research known to increase a student’s likelihood for success in postsecondary education, particularly at baccalaureate-granting institutions.” The changes will not take place immediately, but will allow time for students and high schools to adjust to the new admissions standards.

Beginning in 2008, most college freshmen will need to have completed a precollegiate curriculum in order to gain admission to Colorado four-year colleges. In 2010, the required curriculum for applicants will become more challenging with an additional unit of math and two units of foreign language. Freshmen will also need to meet the institution’s index standard, which is a combination of grade point average or class rank and college entrance exam scores. One unit is equivalent to one year of a single subject. For example, a student who completes a year-long course in algebra I completes one mathematics unit. In order to meet the new standards, students must take particular classes in high school (or eighth grade in math and foreign language if the content is equivalent to high school courses) that fulfill the CCHE guidelines.
Acceptable English courses must “include at least two units that emphasize writing or composition skills as well as literature, speech, and debate.”

The lowest level of math that will count toward a math unit is algebra I. Other acceptable math classes are intermediate algebra, geometry, algebra II, pre-calculus, trigonometry, or a computer science course which has a prerequisite of at least algebra I.

Allowable natural science courses include at least two courses with laboratory work (such as physics, chemistry, or biology) or earth science.

Social science units must include one course in U.S. history or world civilization. Other permissible courses in the social sciences include state and/or international history, civics, principles of democracy, geography, economics, psychology, and sociology.

Academic electives may come from the above academic areas or two units of the same foreign language. Other electives allowed are computer science, art, music, journalism, or drama. Units in all five subject areas may also be fulfilled by honors, advanced placement, and/or international baccalaureate classes.

The guidelines for this curriculum exclude classes such as yearbook, business English, business math, accounting, consumer math, general math, general science, outdoor education, environmental studies, physical science, family living, marriage and family, and consumer education. Though these classes may be worthwhile in themselves, the goal of a precollegiate curriculum is to master challenging course content that will aid the student’s success in college.

CCHE will review the new policy every three years to ensure that the changes are appropriate and in step with state goals and priorities.

State colleges have “admissions windows” for students who are not able to meet the
new admissions standards. This window allows colleges to admit between 10 and 20% of students not meeting the admissions criteria to “provide the institution greater flexibility in recognizing promising students who do not meet the CCHE admission standards.” The window size depends on the selectivity of the institution. The Colorado School of Mines is highly selective with a 10% window, while Western State College is moderately selective and has a window of 20%.  

**Colorado Student Core Completion Rates**

How close are Colorado’s high school students to meeting these standards? Comprehensive ACT data are available on current high school students because all Colorado public school 11th grade students must take the ACT as part of statewide testing requirements. The students report what classes they have taken and plan to take in their senior year. ACT found in reviewing transcripts that the student self-reports have produced an accuracy rate of over 90%.  

In 2001, only 37.5% of Colorado’s public school 11th grade students expected to complete the CCHE recommended core curriculum. Another 19.5% of all test-takers planned to take all but one component of the core. Thus, 57% anticipated either completing the core or being within one class of completing it. Only 29% of Hispanic and 30.7% of black students expected to complete the core curriculum, while 39.3% of white students anticipated completing the core. Asian students came out on top, with 40.9% of students reporting that they planned to complete the core curriculum.

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It should come as no surprise that 26.6% of recent Colorado high school graduates attending Colorado public colleges need remediation when only 37.5% of 11th grade students expect to complete the core curriculum. Many students have not been properly prepared for college-level material. It is important that the K-12 system boost its efforts to equip college-bound students with a solid academic foundation. This is especially vital for black and Hispanic minorities, 70% of whom did not even plan to complete a core curriculum that would help prepare them for college.
The Importance of a Core Curriculum for College-Bound Students

The CCHE report points to numerous studies showing that a rigorous high school curriculum, “built on the basics of English, mathematics, and the natural and social sciences, is the single most significant factor in determining a student’s success in college.” A challenging curriculum can overcome socio-economic circumstances and the level of parental education. For blacks and Hispanics, “the correlation of a rigorous high school curriculum and baccalaureate degree completion is far stronger … than with any other factor.” It is simply common sense that students who learn more in high school will be better prepared for college.

Cliff Adelman, one of the leading experts on remediation at the college level, agrees that a solid curriculum is the most important key to minority success. He writes:

This is a matter of doing the right thing for minority students: not merely admitting them to college, but making sure that they have the momentum to complete degrees. Otherwise we defraud them… Supposing we took… curriculum, test scores, and class rank/academic GPA… and which of the three components produces the best results [baccalaureate attainment] for minority students† The answer is a ‘no-brainer’: curriculum wins hands down!23

Greene studied high school graduation rates and college readiness rates. He noted an interesting correlation: of all college freshmen in 2000, 11% were black and 7% were Hispanic, which was very similar to the portion of college-ready students, 9% of whom were black and 9% of whom were Hispanic. Greene concluded,

This suggests the main reason these groups are underrepresented in college admissions is not insufficient student loans or inadequate affirmative action, but the failure of public high schools to prepare these students for college. So long as black and Hispanic students are less likely to graduate high school, and less likely to be college ready even if they do graduate high school, no financial aid or college admission policy can effectively increase their representation in higher education.24

If we give every minority student in high school access to higher education (through admissions, grants, loans, etc.) but do not prepare them for the rigors of college life, it is simply a façade. It is like giving a 16-year-old a Ferrari but then not giving him the keys to the car or teaching him how to drive. The potential of the gift is great but the recipient has been denied the tools and the knowledge to utilize the gift well.

While a challenging high school curriculum is important, equally so is a solid foundation of basic skills in the early grades. If a student has not mastered the basic skills of reading, writing, and arithmetic, he will simply fall further and further behind.
Without adequate grounding in the basics during the K-12 years, most students are not ready to enter college. And thus, remedial classes in college take the place of high schools in preparing students for college. Because of the lack of preparation at the K-12 level, the state spends more than $18.9 million on remedial classes for recently-graduated high school students—$18.9 million to pay for instruction and learning that should have occurred in high school.

**Student Expectations, Perceptions, and Guidance**

Studies show that most high school students want to attend college. But students lack the knowledge necessary to make wise decisions about what classes to take in junior high and high school that will prepare them for college level work. They need the help of parents and teachers to guide them in the process. This is why it is disturbing that while 71% of students in one survey said they desired to attend a four-year college, only 52% of parents expected the students to continue on, while a meager 32% of teachers indicated the students were likely to attend a four-year college. It is obvious that if parents and teachers have low expectations, the students will not receive the encouragement or the guidance they need to apply for college.

The guidance of teachers is particularly crucial in math. Of the 26.6% of college-going students who needed remediation in at least one area, 85.3% were assigned to math. Decisions about which mathematics courses to take begin in eighth grade and have a significant impact on college completion rates. Adelman produced a study in 1999 indicating that, “Finishing a course beyond algebra II (e.g., trigonometry, pre-calculus) more than doubles the odds that a student entering postsecondary education will complete a baccalaureate degree.”

Even when college admission standards are raised, will students in high school be encouraged to take the college prep curriculum if teachers and counselors do not believe certain students will attend college? Colorado’s Commissioner of Education William Moloney believes that when colleges raise their standards, so will K-12 schools. He states that the main reason why many students do not pursue a rigorous curriculum in high school is because “most colleges no longer require such rigor as a condition of admission.”

A core curriculum should not be forced on students who do not want to attend college. Some students may not be able to or have the desire to complete three units of math. Others may find non-core curriculum classes more helpful for the path they choose to travel. However, these students also need the careful and considerate guidance of parents, teachers, and counselors to...
guarantee that they receive the education they need for what they want to do.

Recommendations
The new admissions standards should serve as a well-lit path in the education wilderness. High schools will know clearly what is expected of the students who desire to enter Colorado public institutions of higher learning.

It is therefore essential that high schools raise the standard in strongly recommending that college-bound students pursue the CCHE core curriculum. If students do not follow this path they will need to enroll in a 2-year college (paying out of their own pocket for classes that could have been “free” in high school) in order to attend a Colorado public four-year college or university. A Public Agenda study found that 71% of students surveyed indicated that they did the bare minimum needed to graduate from high school. Seventy-three percent of the students also believed that a high school diploma means the recipient has learned the basics. The study reveals a basic character of human nature: with a few exceptions, most of us rise to the expectations placed on us, by ourselves or others, but not much further. It is likely that future generations of high school students will also meet the “bare minimum” and think they know the basics. It is time to raise the standards because 26.6% of Colorado’s recent high school graduates attending Colorado public colleges and universities, with high school diploma in hand, are not prepared for college-level coursework.

In addition to receiving a solid foundation of basic skills in the earlier grades, what needs to change so that students who choose to attend college are well prepared? First, the Colorado legislature should pass legislation requiring Colorado school districts to notify parents of 8th grade students of the four-year state college and university admissions standards. Parental guidance is crucial to the academic success of students, therefore parents must be informed about the requirements their children will need to meet should they choose to attend college. For students who desire to attend college, a notification alerts students and parents that they will need to begin choosing challenging core curriculum classes as they register for 9th grade during their 8th grade year. For students not planning to attend college, a notification may instigate discussions between parents and students about the possibility of college that may not otherwise occur.

Second, middle and high school teachers and counselors must encourage college-bound students to take the more difficult classes set forth in the core curriculum. Similar guidance should apply to non-col-
lege-bound students to enroll in classes that will help them succeed in life after high school.

Third, schools must ensure that core curriculum classes are available to students. Some schools may not have the resources to hire teachers who can teach more advanced core curriculum classes. This should not be an obstacle to student learning, as there are resources that schools can draw upon such as online courses and community college classes.

Fourth, college-bound students must rise to the challenge of a tougher high school course load in order to attend and succeed in a four-year college.

**Conclusion**

A good education is increasingly important as jobs become less physical and more knowledge-based. With more education comes increased earning potential. People with a BA degree from college typically make more than twice as much as college dropouts.

More than a quarter of Colorado’s recent public high school graduates attending state colleges require remediation, costing the state and students $34.3 million. Roughly 70% of black and Hispanic students in 2001 did not plan to complete a core curriculum that would help them succeed in college. This must change.

Parents, counselors, and teachers in middle and high schools need to encourage their college-bound students to take the pre-collegiate core curriculum that they will need to enroll in a public college in Colorado and to succeed in any other college they desire to attend. A parental notification to this effect would greatly aid parents and students who may not be thinking about college or may just need more information about the new admissions requirements. High schools must ensure that they provide access to every core curriculum class required by CCHE. Students must also rise to the challenge of a more rigorous curriculum. Those students who do not plan to attend college must also receive guidance to enroll in classes that will help them succeed when they leave high school.

College students should have access to remedial classes if they need them. But when more than a quarter of Colorado college students require remediation, there is a need for change. The K-12 system and individual teachers must ensure that they require an appropriately difficult level of class work so that college-bound students are prepared for college and do not need remediation. Surely the millions currently spent on remediation could be used to improve higher education and college students could better spend their time in college-level classes.
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Notes

1Students may be assigned to more than one remedial subject, causing a sum total of more than 100% between the three subject areas.


3CCHE, Agenda Item IV, B, Attachment A, Part E, “Statewide Remedial Education Policy,” August 9, 2000, 3.01-3.01.02, http://www.state.co.us/cche/agenda/agenda00/augivb1.html.

4CCHE, “Colorado Public High Schools Whose Completers Were Enrolled, Assessed, and Remediated in Colorado Public Higher Education, FY 2002 and 2003,” chart e-mailed to the author by Carol Futhey, Director of Academic and Student Affairs, November 19, 2003. Students who are assigned to remediation are not required to enroll in a remedial course unless it is a prerequisite for another class they desire to take.

5Carol Futhey, Director of Academic and Student Affairs, CCHE, e-mail to the author, December 1, 2003.


12Bridget Mullen, Financial Analyst, CCHE, conversation with the author, December 12, 2003. The cost may be higher because some colleges may use tuition paid by out-of-state students to additionally subsidize in-state student remediation costs.

13Colorado Revised Statutes § 23-1-113.3(2)(a).


15Ibid, 1.00.

16Ibid, 4.00.

17Ibid, 4.00-4.01. These classes may qualify as academic electives.

18Ibid, 1.00.

19Ibid, 5.05.

20Carol Futhey, Director of Academic and Student Affairs, CCHE, e-mail to the author, November 4, 2003.

21CCHE, Agenda Item V, B, Attachment E, Table 2, Prepared by Carol Futhey and Ray Kieft, June 5, 2003, http://www.state.co.us/cche/agenda/agenda03/jun03/jun03vib-atte.htm.


24Greene, emphasis added. Greene found college readiness rates by applying three tests: 1. Graduation from high school with a diploma. 2. A core curriculum very similar to Colorado’s new admissions curriculum requirement. 3. Possession of basic reading skills.


