COLLEGE READINESS

ISSUES IN COLLEGE READINESS

How Much Growth toward College Readiness Is Reasonable to Expect in High School?

Introduction

Only 1 in 5 ACT-tested 2008 high school graduates are prepared for entry-level college courses in English Composition, College Algebra, social science, and Biology, while 1 in 4 are not prepared for college-level coursework in any of the four subject areas (ACT, 2008a). This lack of college readiness also means a lack of career readiness: while not every high school graduate plans to attend college, the majority of the fastest-growing jobs that require a high school diploma, pay a salary above the poverty line for a family of four, and provide opportunities for career advancement require knowledge and skills comparable to those expected of the first-year college student (ACT, 2006). Improving the college and career readiness of all our students will provide a better foundation of knowledge and skills to allow future workers to adapt to the changing requirements of a more technologically sophisticated and internationally competitive working world.

An important question in preparing all students for college and career by the time they graduate from high school is that of determining how much growth in academic achievement typically occurs during high school and whether such growth can be accelerated so that more students are ready for college and career when they graduate from high school.

The Study

To answer this question, we first examined the average scores of a sample of approximately 150,000 students who participated in the three programs that make up the longitudinal assessment component of ACT's College Readiness System: EXPLORE® (for students in grades 8 and 9), PLAN® (for students in grade 10), and the ACT® test (for students in grades 11 and 12). Each program contains four subject tests: English, Mathematics, Reading, and Science.[1] With respect to racial/ethnic composition, geographic region, and annual family income, the demographic characteristics of the student sample roughly approximate those of the population of high school students nationwide. (See the Appendix for demographic information about the sample.) The average scores for each test are shown in Figure 1.[2]

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[1] The ACT also contains an optional Writing Test.

[2] The three programs use the same score scale. The maximum possible score on each subject test is 25 for EXPLORE, 32 for PLAN, and 36 for the ACT.

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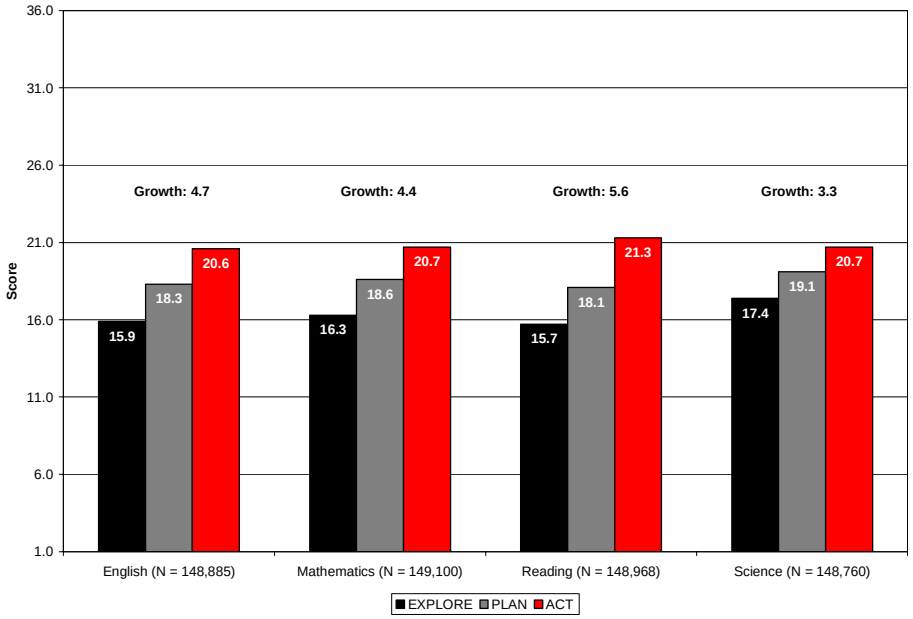
Figure 1: Average Growth in Achievement between Eighth and Twelfth Grades



As the figure shows, the average amount of growth ranged from 3.3 score points on the Science Test to 5.6 score points on the Reading Test for the total sample.

Given the average growth for all students shown in Figure 1, it would be informative to examine whether growth rates differ depending on the degree to which students are on target to becoming ready for college and career in the eighth grade, as defined by their success at meeting the College Readiness Benchmarks for EXPLORE in the eighth grade. ACT's College Readiness Benchmarks are the scores on the test indicating whether students who take EXPLORE and PLAN are on target to be ready for college-level work by the time they graduate from high school and whether students who take the ACT have reached this level of readiness. These Benchmarks, given below, have been empirically established using course grade data on more than 90,000 students in a nationally representative sample of postsecondary institutions.

Table 1: ACT's College Readiness Benchmarks

Test	EXPLORE	PLAN	ACT
English	13	15	18
Mathematics	17	19	22
Reading	15	17	21
Science	20	21	24

We divided our sample of students into three groups: those who were on target in eighth grade (i.e., who met or exceeded the EXPLORE College Readiness Benchmarks), those who were nearly on target (i.e., who were within 2 or fewer score points of meeting each EXPLORE Benchmark), and those who were off target (i.e., who were more than 2 score points from meeting each EXPLORE Benchmark). The average scores for these three groups are given in Figures 2a through 2d.

Figure 2: Average Growth in Achievement between Eighth and Twelfth Grades, by Degree of College Readiness

Figure 2a: English

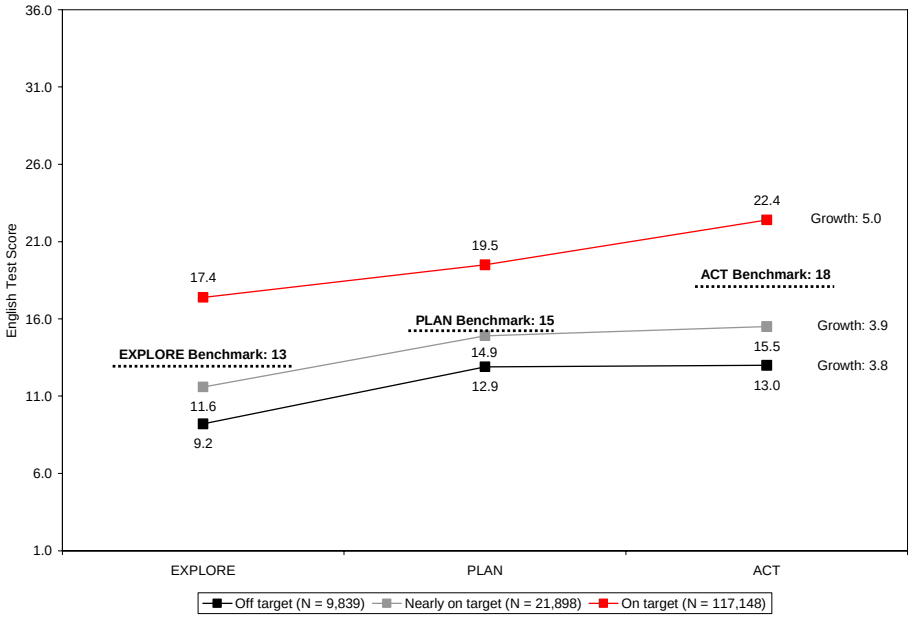


Figure 2b: Mathematics

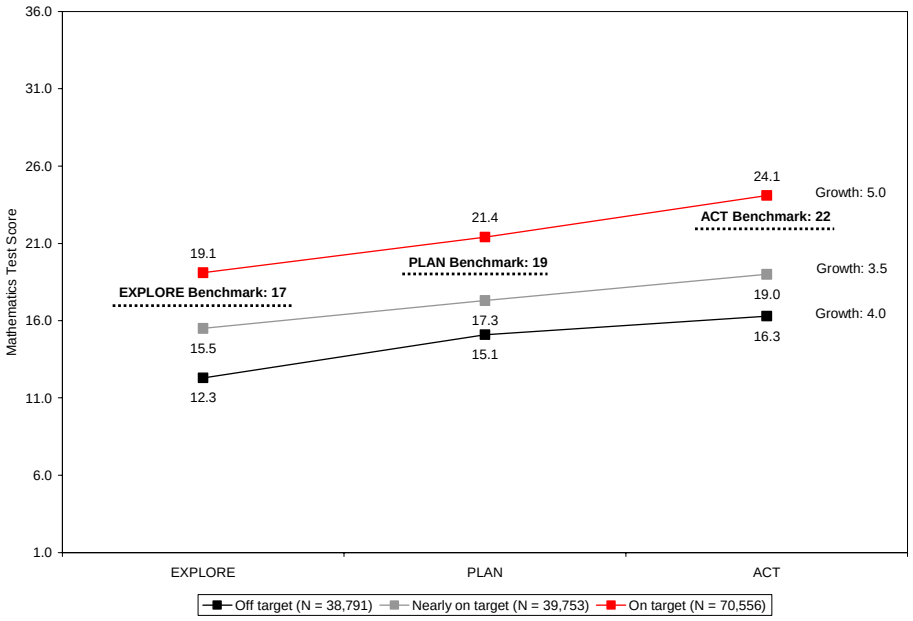


Figure 2c: Reading

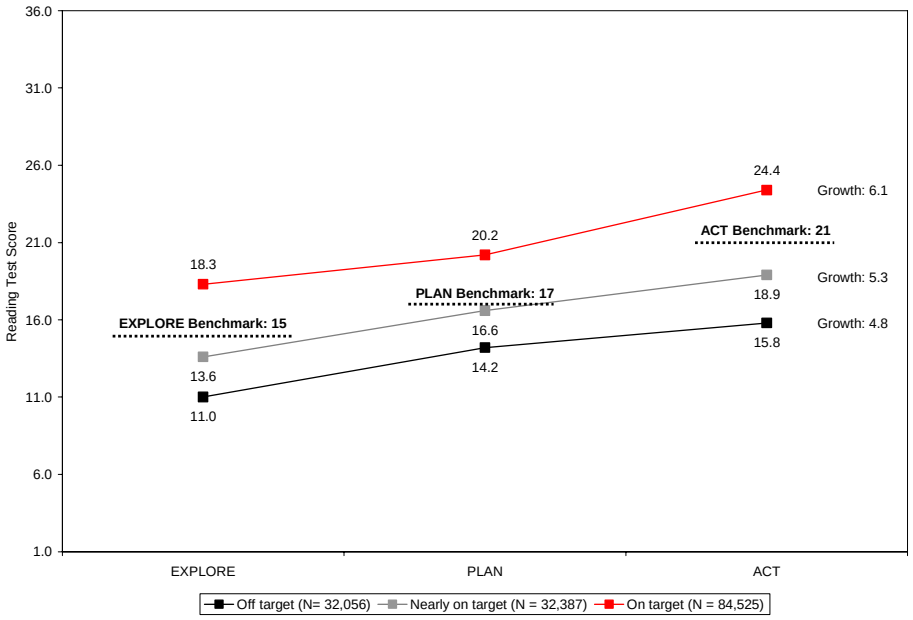
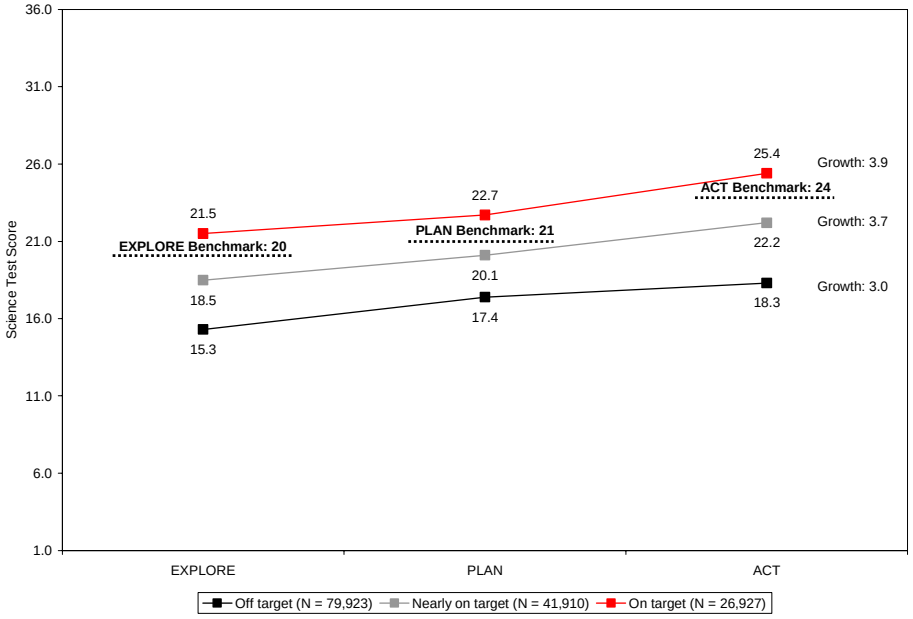


Figure 2d: Science



These figures show that average growth was greatest for the group of students who were on target for college and career readiness in eighth grade. This finding was also seen for racial/ethnic minority students (i.e., those students who identified themselves as African American, American Indian, Hispanic, Multiracial, or Other).

In addition, the figures show that students who were on target in eighth grade demonstrated more growth between PLAN and the ACT than did either of the other two groups—which is particularly noteworthy in light of ACT research showing that students' momentum toward college readiness frequently declines or stalls during this period (ACT, 2007). This was also true for racial/ethnic minority students.

Perhaps more important, Figures 2a through 2d show that the group of students who were on target for college and career readiness in eighth grade *were the only students who stayed on target in tenth grade and went on to become ready for college-level work by high school graduation.* This also held for racial/ethnic minority students.

Setting challenging—yet reasonable—growth goals

Individual students' growth goals can be set using the College Readiness Benchmarks and the growth trajectories in Figures 2a through 2d as a yardstick. For students who are off target in eighth grade, a challenging yet reasonable goal on successive tests is to reduce by half the difference between the student's score in a given subject and the corresponding College Readiness Benchmark. For example, in Reading, a student with an EXPLORE score of 11 (4 points below the EXPLORE Benchmark) would set goals of 15 for PLAN (2 points below the PLAN Benchmark) and 20 for the ACT (1 point below the ACT Benchmark). Students who are nearly on target in eighth grade should, at a minimum, meet the PLAN College Readiness Benchmarks in tenth grade and then attempt to demonstrate above-average growth from PLAN to the ACT by twelfth grade. (Using Figure 2, we can set above-average growth expectations from PLAN to the ACT at 3 points for English, Mathematics, and Science and 4 points for Reading.) Students who are on target in eighth grade should aspire to above-average growth by both tenth and twelfth grades; above-average growth expectations from EXPLORE to PLAN can be set at 3 score points for English, Mathematics, and Reading and 2 score points for Science.

Table 2 presents the percentages of students who are currently meeting these growth goals. The percentages vary from 23 percent (for overall growth in Science from PLAN to the ACT) to 47 percent (for overall growth in English from EXPLORE to PLAN). This suggests that, for the majority of students, the goals are challenging but attainable. A notable exception is that students who are off target in eighth grade are meeting the growth goals from PLAN to the ACT at low rates.

Table 2: Percentages of Students Currently Meeting Challenging Growth Goals

Test	Off Target		Nearly on Target		On Target		Overall	
	EXPLORE to PLAN	PLAN to the ACT	EXPLORE to PLAN	PLAN to the ACT	EXPLORE to PLAN	PLAN to the ACT	EXPLORE to PLAN	PLAN to the ACT
English	48	13	58	27	45	43	47	39
Mathematics	23	5	22	21	45	47	33	29
Reading	36	12	51	33	44	46	44	36
Science	34	10	42	35	40	40	37	23

Another way to set growth goals is by first measuring the average growth at high-performing high schools (i.e., schools showing the greatest growth) and then setting goals for students at lower- and average-performing high schools according to what is considered normal growth at the high-performing high schools. Like the first approach described above, this approach would set the bar for growth at a higher level than that indicated by the average growth shown in Figures 2a through 2d. Additionally, it would align student goals at

lower- and average-performing high schools with the actual performance of students at high-performing high schools.

Conclusion

Reasonable growth in achievement is seen throughout high school for students who are on target for college and career readiness. Students who are significantly off target for college and career readiness in eighth grade are far less likely to become ready for college-level work during high school. For these students, academic interventions will be necessary in order to help them attain the foundational academic skills that are necessary for college and career readiness. Setting reasonable, yet challenging, growth goals for all students is one way of helping to ensure that more of them will be—and stay—on target for college and career readiness throughout high school.

In addition, ACT research shows that, in the typical high school today, the level of academic achievement that students attain by eighth grade has a larger impact on their college and career readiness by the time they graduate from high school than anything that currently happens academically in the typical U.S. high school (ACT, 2008b). This research demonstrates that it is necessary to intervene with students who are not on target for college and career readiness—not only during high school but *before* high school, in the upper elementary grades and in middle school. Even improving the rigor of high school courses may not be successful unless we first increase the number of entering high school students who are prepared to benefit from such rigorous courses.

College and career readiness is the product of a process that begins in elementary school and extends through high school. Given the average rate of progress seen in this nationally representative sample, it is important that all students have the foundational academic skills they need to maximize their learning in high school. And if students are to maximize the benefits of high school, a strong start is essential.

References

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ACT. (2008a). *Measuring college readiness: The national graduating class of 2008.* Iowa City, IA: Author.

ACT. (2008b). *The forgotten middle: Ensuring that all students are on target for college and career readiness before high school.* Iowa City, IA: Author.

APPENDIX

Demographic Information for Student Sample (and All U.S. High School Students)

Group	Percentage
Race/Ethnicity	
African American	14 (13)
Asian American	5 (8)
Hispanic	13 (22)
White	56 (55)
Other/No Response	12 (2)
Geographic Region	
East	26 (40)
Midwest	25 (22)
Southwest	25 (12)
West	24 (26)
Annual Family Income	
Less than $20,000	12 (16)
$20,000 to $50,000	23 (33)
$50,000 to $100,000	25 (35)
More than $100,000	11 (16)
No response	29 (0)