

Alternative Growth Goals *for* Students Attending Alternative Education Campuses



AN ANALYSIS OF NWEA'S MAP ASSESSMENT: TECHNICAL REPORT

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Growth on the NWEA MAP Assessment in Students Attending Alternative Education Campuses

The Northwest Evaluation Association's (NWEA) Measures of Academic Progress (MAP) are a series of computer adaptive tests that can be administered up to four times per year (<http://www.nwea.org>). The MAP test is nationally normed and is available for grades 2-10 in mathematics, reading, and language usage. According to NWEA, when used to their fullest extent, a student's MAP scores can be used by teachers and school administrators to:

- Identify the skills and concepts individual students have learned.
- Diagnose instructional needs.
- Monitor academic growth over time.
- Make data-driven decisions at the classroom, school, and district levels.
- Place new students into appropriate instructional programs.

The attributes of NWEA's MAP assessments have made them a widely used tool within many schools and districts, including schools that cater to previous drop-outs and students identified as being at high risk of dropping out (i.e., alternative education campuses).

Alternative education campuses (AECs) typically serve students that have not been successful within the traditional education systems. Often these students are dealing with emotional difficulties, substance abuse, behavioral problems, have been in trouble with the law, or are pregnant or parenting teens. These

students tend to be highly mobile, dropping in and out of (the same or various) programs multiple times before completing high school. Due to the mobile nature of the student population attending AECs, measures of student growth on state tests can be problematic, as they most often require consecutive enrollment from one year to the next. AECs, therefore, value the NWEA MAP assessment because it enables them to measure the progress of students over shorter time intervals.

However, NWEA intentionally does not include students attending AECs in their norming studies, (NWEA, 2006), so AEC educators must compare the growth of their students to the growth of a sample of students that "look" nothing like them¹. In addition, a large proportion of AEC students are over-aged and under-credited. Therefore, students as old as 19 or 20 years of age may be taking the 10th grade MAP test—for which NWEA has no comparative norming sample.

This paper² explores the use of NWEA's RIT scores and RIT growth as supplemental measures for use in accountability frameworks for AECs and explores whether there are significant differences in the growth observed between the NWEA 2005 norming sample and growth among alternative education students that were tested between Spring of 2005 and Spring of 2007.

¹ NWEA's 2005 norming sample consisted of largely Caucasian, middle and upper-middle class students of traditional (i.e., non-alternative) schools.

² This project was funded as part of the USDOE's grant initiative, BCSQ, aimed at identifying quality indicators of charter school effectiveness and the use of data for school improvement and high stakes decision making.

Methodology

Identification of Students

The Building Charter School Quality (BCSQ) team (see footnote 2) worked with four target states; Arizona, Colorado, Florida, and Ohio; consequently these were the states that were the initial focus of this investigation. To ensure large enough samples to make the analysis meaningful, however, we added five additional states that were known (by NWEA personnel) to have a high concentration of NWEA users. The additional states included California, Indiana, Minnesota, South Carolina, and Texas.

By design, NWEA does not identify schools by-type or curricular focus. Therefore, accurate lists of designated³ AECs were obtained from state departments of education. Once the schools were identified (N=2,634)⁴, the list was given to NWEA staff who then queried their national database for matches, based on the schools' NCES identification code. NWEA then provided student level growth data for all students with valid MAP scores for spring 2005 through spring 2007. Only a masked student identification number and the state in which the student tested were provided to link the students longitudinally. No school identifiers or student demographic data were provided.

The first part of this report explores whether students attending AECs between 2005 and 2007 show similar growth on the NWEA MAP tests, as that of the 2005 norming population. Secondly, we address how principals and staff of AECs might set goals for their students using alternative growth goals (or targets) for the NWEA assessments.

Growth Calculations

Actual and target RIT growth scores were calculated for students that had both pre- and post-RIT scores in one or more of the following time frames:

- Fall 2005 to Spring 2006 (9-month)
- Fall 2005 to Fall 2006 (12-month)
- Spring 2005 to Spring 2006 (12-month)
- Fall 2006 to Spring 2007 (9-month)
- Fall 2006 to Fall 2007, and (12-month)
- Spring 2006 to Spring 2007 (12-month)

Average RIT scores were computed, by grade, for the fall and spring test administrations between 2005 and 2007. These scores were then aggregated to produce one average for fall RIT scores and another average for spring RIT scores, for grades 7-12. Note that the 11th and 12th grade RIT averages were computed

using NWEA's 10th grade MAP assessments. This was done so that AECs can assess whether their upper class students are performing similarly to other AEC students across the country.

Actual growth was computed by calculating a difference score for RIT values over either a 9-month (fall to spring) or 12-month period (either fall to fall or spring to spring) among students that had two valid RIT scores across those time periods. For example, if a student had a RIT score of 215 in mathematics in the fall of 2005, and a RIT score of 219 in mathematics in the spring of 2006, his actual growth would have been 4 RIT points during that 9-month interval.

Target growth was computed using the NWEA growth projection calculator (nwea.org/support), based on the 2005 norming sample (NWEA, 2005). The target growth is based on the average growth of all "similar" students across the country. Student similarity is based on the students' prior grade and RIT score. Each student's



prior score was associated with a RIT value determined by the 2005 NWEA norming tables. For example, if the student in the example above was in 6th grade his Target RIT growth would be based on the average of all 2005 6th grade students with the same fall score. The target fall 2005 to spring 2006 RIT growth, according to the 2005 mathematics norms for 6th grade students, whose prior score was 215, was 7 RIT points. Therefore, the actual growth of 4 RIT points for the student in this example was lower than his target growth from fall 2005 to spring of 2006.

Difference scores were calculated to assess the difference between each student's target growth and their actual growth, using simple subtraction: Actual Growth - Target Growth = Difference Score.

3 When applicable, only schools that met legislative ruling for AEC designation were included. However, such designations only exist in three of the states; California, Colorado, and Texas. The rulings include two key aspects, a) the definition of a high/at-risk student, and 2) the percentage of students that qualify for the high/at-risk designation required to be considered an alternative campus. The AEC designation within each of the three states qualifies the alternative campuses for some form of alternative accountability—though this varies in meaning from state to state.

4 Lists were believed to be current and correct (by the state departments of education) as of the fall of 2007. One hundred and eleven AECs were identified in Arizona, 1,254 in California, 42 in Colorado, 12 in Florida (Duval County only, as NWEA identified this county as the only user within the state), 132 in Indiana, 517 in Minnesota, 50 in Ohio, 5 in South Carolina, and 509 in Texas.

In the above example the student's difference score was -3 (4 - 7 = -3). Negative values indicated that the student's actual growth was lower than expected, given his starting RIT and according to 2005 norms.

Alternative growth goals were computed in order to provide guidance to AEC principals and teachers around goal setting—both for individual students' progress monitoring and for school accountability. While the 2005 norming tables provide school leaders and teachers with an idea of “typical” growth expectations



for students, by grade and prior RIT score, the 2005 norming population was made up of primarily affluent, Caucasian students that attended suburban schools and displayed typical grade transitions (e.g., 3rd to 4th, or 9th to 10th) in a one year period. Additionally, NWEA intentionally omits data from AEC students in their norming sample. Consequently, it is unknown whether an AEC student's growth differs markedly from that of the 2005 NWEA norming sample's population of students.

AECs tend to be nested in large urban areas and have a more diverse demographic profile of students. Students attending AECs also tend to vary widely in their academic histories and grade progressions. For example, in 2006, 26.5 percent of 9th grade students attending Colorado AECs were retained a grade, compared to 2.1 percent of 9th grade students attending traditional public high schools, while another 3 percent of AEC students were actually demoted a grade⁵ (i.e., transgressed from 10th to 9th grade) (Ernst, unpublished).

In addition, the power of NWEA's MAP assessments to diagnose instructional needs and track student learning and growth make it a remarkably attractive tool for AEC personnel to use, even beyond the 10th grade. Another attractive feature of the MAP test for an AEC is the potential of being able to administer it to students up to four times each year. This feature of the MAP test allows teachers and administrators the option to monitor the progress of an often very mobile and very diverse population. While NWEA states that the nature of the computer adaptive test makes this possible, they do not provide any norming data for this population in either their 2005 or 2008 norming tables⁶.

NWEA's traditional norming tables are produced by computing the average growth of students with the same prior year scale score and grade. Given the number of students taking the MAP tests across the country, NWEA is able to compute an average growth value for every RIT score possible (see NWEA, 2007). However, the number of students attending AECs that take the MAP test was not sufficiently large enough for us to do the same. Therefore, average RIT growth values were computed based on grade and 10-point RIT score ranges. Even with using the 10 point RIT score ranges we often computed average growth based on a very low number of students. Therefore, the values in the alternative growth goal tables should be viewed as estimations of target growth for alternative education students.

Finally, the average growth values presented in the alternative growth goal tables were computed for students that followed both typical grade and atypical grade progressions (i.e., students that were retained or demoted); however, students that were demoted or promoted two or more grade levels during the testing interval were not included in these calculations. This was done because alternative education schools often serve students from both populations. Using data only from students with typical grade progressions would not have provided an accurate portrait of the growth AECs might expect among their student body.

5 This is compared to 0.01 percent of traditional high school students.

6 NWEA's 2008 norming data does go up to 11th grade for RIT scores, but not for growth targets.

Results

Average RIT Scores Among Alternative Education Students

In the fall, students attending AECs appear to perform similarly to the 2005 norming sample during the middle school years (Table 1). However, average RIT scores among AEC high school students appear to be markedly lower than the average RIT of 9th and 10th graders in the norming sample.

Table 1. Average Fall RIT Score for AEC Students, Grades 7th Through 12th, Compared to NWEA 2005 Norming Sample

GRADE	MATHEMATICS		READING	
	AEC STUDENTS	NWEA 2005 NORMS	AEC STUDENTS	NWEA 2005 NORMS
7TH	227	223	215	215
8TH	228	229	217	218
9TH	224	232	215	221
10TH	222	236	215	224
11TH	221	—	215	—
12TH	223	—	217	—

In the spring, AEC students across all grade levels investigated did not show average RIT scores that were comparable to the 2005 norming sample (Table 2). However, the spring averages for 11th and 12th graders that attend AECs suggest that these students continue to acquire new skills and knowledge as they progress through the alternative education programs.

Table 2. Average Spring RIT Score for AEC Students, Grades 7th Through 12th, Compared to NWEA 2005 Norming Sample

GRADE	MATHEMATICS		READING	
	AEC STUDENTS	NWEA 2005 NORMS	AEC STUDENTS	NWEA 2005 NORMS
7TH	223	228	213	218
8TH	226	233	215	221
9TH	218	236	210	223
10TH	219	238	212	224
11TH	220	—	214	—
12TH	222	—	216	—

NOTE: The increase, or decrease, in averages from fall to spring should not be interpreted as though they were computed on matched students. Rather, it is assumed that the averages are based on a largely different student population between the fall and spring, at least for the students that attended an AEC.

Target Growth vs. Actual Growth Among Alternative Education Students

The following section presents the comparison of target and actual RIT growth for AEC students in grades 7th through 10th. Tables are presented that display the mean values by grade levels (7th and 8th and 9th and 10th), testing interval (12-month and 9-month), and state. While we provide (and describe) the mean values within states, a number of these are based on a low number of students. Therefore, we caution the reader not to over interpret the differences in means between states. Rather, we feel that the most appropriate figures to use for interpretation are those for all states combined.

Table 3. NWEA Target Growth vs. Actual Growth (12 month testing interval) in Reading, by State, Among 7th & 8th Grade (at pre-test) Students Attending AECs

STATE	TARGET GROWTH	ACTUAL GROWTH	MEAN DIFFERENCE
ARIZONA (N=0)	-	-	-
CALIFORNIA (N=106)	6.32	3.70	-2.62
COLORADO (N=27)	6.02	-0.68	-6.70
INDIANA (N=4555)	6.43	2.82	-3.61
MINNESOTA (N=1610)	6.07	2.53	-3.54
SOUTH CAROLINA (N=370)	6.37	4.41	-1.96
TEXAS (N=97)	6.61	3.81	-2.80
ALL STATES (N=6768)	6.30	2.86	-3.44

READING

When looking at target growth and actual growth in reading for students attending AECs, there were often marked differences between the two scores. Actual growth, over the 12-month interval, seen for students in grades 7th through 9th during pre-administration, was lower than target growth in all of the seven states investigated. While AEC students in grades 7th and 8th (Table 3), across all states showed positive growth, their actual growth averaged 3.44 points lower than their target growth. Similarly, the growth of 9th grade AEC students (Table 4) averaged 2.56 fewer RIT points than projected by the NWEA norming tables.

Table 4. NWEA Target vs. Actual Growth (12- Month Testing Interval) in Reading, by State, Among 9th Grade (at pre-test) Students Attending AECs

STATE	TARGET GROWTH	ACTUAL GROWTH	MEAN DIFFERENCE
ARIZONA (N=34)	6.82	7.79	0.97
CALIFORNIA (N=251)	6.16	0.14	-6.02
COLORADO (N=84)	4.50	-0.09	-4.59
INDIANA (N=829)	5.06	1.42	-3.64
MINNESOTA (N=350)	6.02	0.88	-5.14
SOUTH CAROLINA (N=371)	6.47	2.56	-3.91
TEXAS (N=120)	5.81	3.64	-2.17
ALL STATES (N=2039)	4.15	1.59	-2.56

The 9-month testing interval for reading showed similar, negative, differences (Tables 5 and 6). Actual growth for all states except Colorado was positive; however, on average AEC students did not meet their growth targets. For 7th and 8th graders (Table 5) the overall average difference between targeted and actual growth was -3.35 RIT.

The overall trend in AEC students' performance has and growth, thus far, has been relatively similar—with AEC student growth

falling short of the targets set by the 2005 NWEA norming sample. However, 9th and 10th grade students attending AECs (Table 6) in over half the states investigated (Arizona, California, Colorado, and Texas) not only showed actual growth that was below the target, they actually showed negative growth between their fall and spring test administrations. The overall average growth across all seven states, however, was positive—albeit 2.84 below RIT the average target.

Table 5. NWEA Target Growth vs. Actual Growth (9 month testing interval) in Reading, by State, Among 7th and 8th Grade (at pre-test) Students Attending AECs

STATE	TARGET GROWTH	ACTUAL GROWTH	MEAN DIFFERENCE
ARIZONA (N=0)			
CALIFORNIA (N=193)	5.98	2.17	-3.81
COLORADO (N=30)	6.04	2.21	-3.83
INDIANA (N=8994)	6.57	2.72	-3.85
MINNESOTA (N=3607)	6.82	3.29	-3.53
SOUTH CAROLINA (N=663)	6.48	3.35	-3.13
TEXAS (N=188)	6.90	2.96	-3.94
ALL STATES (N=13684)	6.25	2.90	-3.35

Table 6. NWEA Target Growth vs. Actual Growth (9 month testing interval) in Reading, by State, Among 9th and 10th Grade (at pre-test) Students Attending AECs

STATE	TARGET GROWTH	ACTUAL GROWTH	MEAN DIFFERENCE
ARIZONA (N=41)	4.35	-0.64	-4.99
CALIFORNIA (N=567)	5.68	-0.11	-5.79
COLORADO (N=409)	5.64	-1.52	-7.16
INDIANA (N=3075)	3.48	1.99	-1.49
MINNESOTA (N=486)	4.99	1.54	-3.45
SOUTH CAROLINA (N=1142)	4.59	1.63	-2.96
TEXAS (N=275)	5.81	-0.63	-6.44
ALL STATES (N=5995)	4.15	1.31	-2.84

MATHEMATICS

Among 7th and 8th graders attending AECs (Table 7), actual growth in mathematics for the 12-month testing interval was lower than that seen in the NWEA norming sample and in Colorado students' RIT scores actually decreased between the two test administrations. Across all states the average difference in mathematics for 7th and

8th graders, over a 12-month interval, was -1.20 RIT.

Findings were very similar, in mathematics, for the 9th grade AEC students (Table 8) across a 12- month interval. The average difference between target mathematics growth and actual growth, across all seven states, was -1.62 RIT.

Table 7. NWEA Target Growth vs. Actual Growth (12-month testing interval) in Mathematics, by State, Among 7th and 8th Grade (at pre-test) Students Attending AECs

STATE	TARGET GROWTH	ACTUAL GROWTH	MEAN DIFFERENCE
ARIZONA (N=0)			
CALIFORNIA (N=46)	6.59	2.49	-4.10
COLORADO (N=22)	6.14	-3.46	-9.60
INDIANA (N=3296)	6.34	5.14	-1.20
MINNESOTA (N=1514)	6.06	4.78	-1.28
SOUTH CAROLINA (N=346)	6.26	6.87	0.61
TEXAS (N=57)	6.20	3.67	-2.53
ALL STATES (N=5282)	6.25	5.05	-1.20

Table 8. NWEA Target Growth vs. Actual Growth (12 month testing interval) in Mathematics, by State, Among 9th Grade (at pre-test) Students Attending AECs

STATE	TARGET GROWTH	ACTUAL GROWTH	MEAN DIFFERENCE
ARIZONA (N=35)	4.35	3.04	-1.31
CALIFORNIA (N=221)	5.68	0.87	-4.81
COLORADO (N=51)	5.64	0.36	-5.28
INDIANA (N=707)	3.48	2.79	-0.69
MINNESOTA (N=194)	4.99	3.38	-1.61
SOUTH CAROLINA (N=347)	4.59	2.82	-1.77
TEXAS (N=81)	5.81	2.79	-3.02
ALL STATES (N=5210)	4.15	2.53	-1.62

As with the 12-month growth results, AEC students in the investigated states showed lower values for actual growth than target growth in mathematics for the fall to spring testing interval.

Table 9. NWEA Target Growth vs. Actual Growth (9 month testing interval) in Mathematics, by State, Among 7th and 8th Grade (at pre-test) Students Attending AECs

STATE	TARGET GROWTH	ACTUAL GROWTH	MEAN DIFFERENCE
ARIZONA (N=0)			
CALIFORNIA (N=94)	6.43	1.84	-4.59
COLORADO (N=17)	6.54	6.01	-0.53
INDIANA (N=5926)	6.27	3.70	-2.57
MINNESOTA (N=2514)	5.87	5.40	-0.47
SOUTH CAROLINA (N=471)	6.03	5.29	-0.74
TEXAS (N=102)	6.34	3.89	-2.45
ALL STATES (N=9125)	6.25	4.24	-2.01

This was true of 7th and 8th graders (Table 9) as well as the 9th and 10th grade students (Table 10) attending AECs.

Table 10. NWEA Target Growth vs. Actual Growth (9 month testing interval) in Mathematics, by State, Among 9th and 10th Grade (at pre-test) Students Attending AECs

STATE	TARGET GROWTH	ACTUAL GROWTH	MEAN DIFFERENCE
ARIZONA (N=7)	4.27	3.68	-0.59
CALIFORNIA (N=253)	5.43	1.63	-3.80
COLORADO (N=98)	5.79	2.58	-3.21
INDIANA (N=2184)	4.06	2.22	-1.84
MINNESOTA (N=245)	5.82	0.70	-5.12
SOUTH CAROLINA (N=792)	4.78	3.46	-1.32
TEXAS (N=172)	6.03	-1.36	-7.39
ALL STATES (N=3751)	4.15	2.19	-1.96



Alternative Growth Goals

The findings shown previously in the target vs. actual tables revealed that AEC students are consistently growing less than that of the NWEA norming sample, begging the question; “Does this group of students require an alternative growth goal?”

The following figures display average growth for students that scored within these 10-RIT point ranges. AEC students were clustered using two different definitions. The group labeled as “typical” is categorized as progressing from one grade to the next in a single school year, while the second category of AEC students includes those students that may have been demoted, promoted more than a single grade level or been retained. Table 11 details the counts on the aforementioned groups. Any student that was reassigned two or more grade levels above or below their pre-test grade level was omitted from these analyses (Mathematics: N=206; Reading: N=382).

Table 11. Number of Students Following Typical and Alternate Grade Progression

	12-MONTH TESTING INTERVAL		9-MONTH TESTING INTERVAL	
	MATHEMATICS	READING	MATHEMATICS	READING
TYPICAL PROGRESSION	6861	8767	13303	21066
RETENTION	405	584	n/a	n/a
REGRESSION	24	41	81	185

The following comparisons will be in reference to the NWEA norming samples and two samples of AEC students. The first sample consists of AEC students that followed traditional grade progressions only (referred to as ‘Typical’ AEC sample). The second sample includes all AEC students⁷ (referred to as the ‘Combined’ AEC sample).

The comparisons are displayed in a series of figures that illustrate the average RIT growth by grade level, NWEA test administration interval, and 10-point RIT range for the score received on the first of the two test administrations.

It should, again, be noted that the number of students within the 10-point RIT ranges are small, especially in the tails of the distributions. Therefore, the authors warn readers not to over interpret the results.

⁷ Note, the combined AEC sample does not include students who had been promoted or demoted by more than two grade levels in a single year.

SEVENTH GRADE READING

When looking for trends in growth for seventh grade AEC students taking the MAP test for reading (Figures 1 and 2), it is apparent that there are not many differences between the group of Typical AEC sample and the Combined AEC sample. However, it seems that 12-month growth (Figure 1) for AEC students is generally lower than that seen for 7th graders in the 2005 NWEA norming sample—although within the range of standard error (reported by NWEA as between 2.5 and 3.5 RIT, NWEA).

Similarly, when looking at 9-month growth in reading (Figure 2), the RIT growth between the typical and combined samples did not vary

widely. Although slightly lower than the NWEA 7th grade norming sample, the 7th grade AEC samples' growth falls well within the standard error range.

In general, while 7th graders attending AECs appear to grow at a slightly lower rate than the NWEA norming sample, the differences are within a standard error. Therefore, AEC principals and teachers could continue to use NWEA's target norms for their seventh grade students, in reading.

FIGURE 1. AVERAGE 7TH GRADE* RIT 12-MONTH GROWTH IN READING FOR NWEA NORMING AND AEC STUDENTS

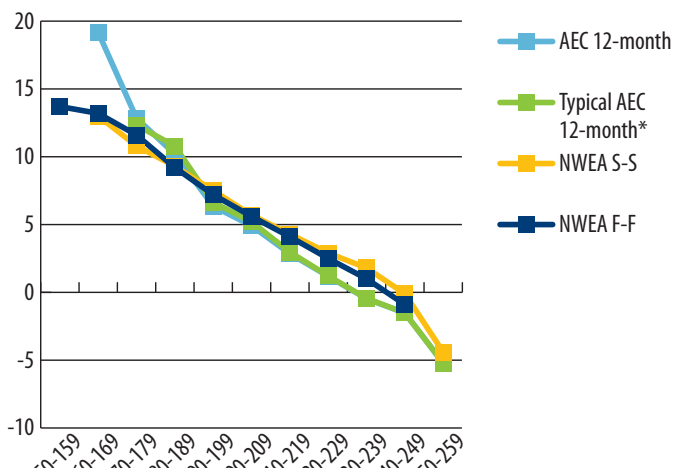
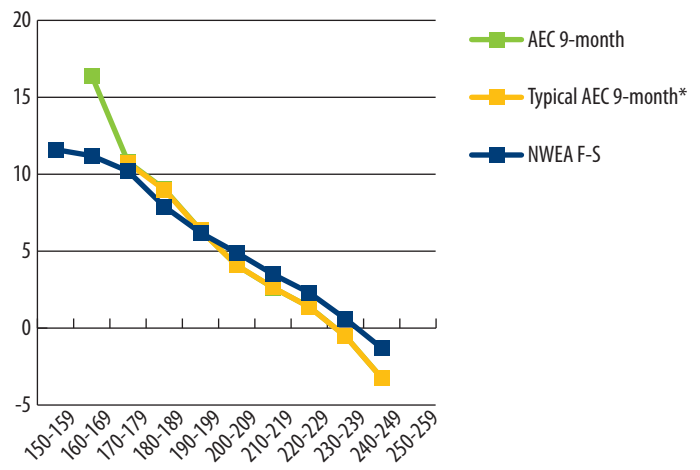


FIGURE 2. AVERAGE 7TH GRADE* RIT 9-MONTH GROWTH IN READING FOR NWEA NORMING AND AEC STUDENTS



SEVENTH GRADE MATHEMATICS

When comparing NWEA's 7th grade normative growth to the growth of the AEC 7th grade samples, the difference in mathematics appear marginal, except in the lower end of the MAP pre-score distribution. In both the 12-month testing interval (Figure 3) and 9-month interval (Figure 4) the AEC samples displayed higher RIT growth when compared to NWEA samples (fall-to-fall and spring-to-spring). However, this is likely attributable to regression to the mean and the

small number of AEC students scoring in those ranges.

When looking at differences for seventh grade mathematics over a 9-month testing interval (Figure 4), slight differences were seen at the upper end of the distribution with the NWEA norming sample outperforming the AEC samples. Both AEC samples revealed high growth when pre-scores were at the lower end of the distribution.

FIGURE 3. AVERAGE 7TH GRADE* RIT 12-MONTH GROWTH IN MATHEMATICS FOR NWEA NORMING AND AEC STUDENTS

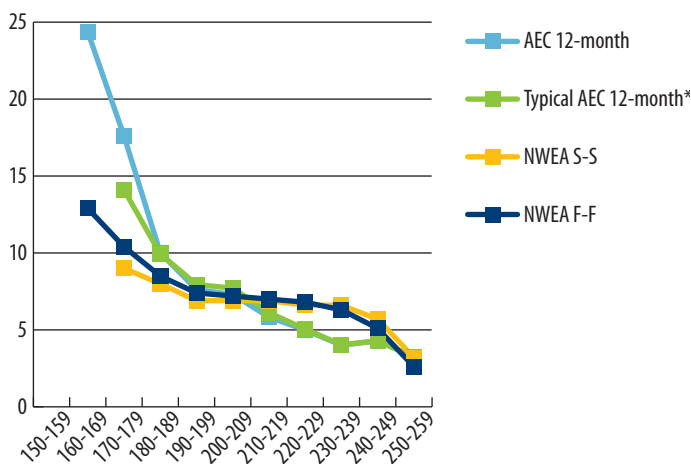
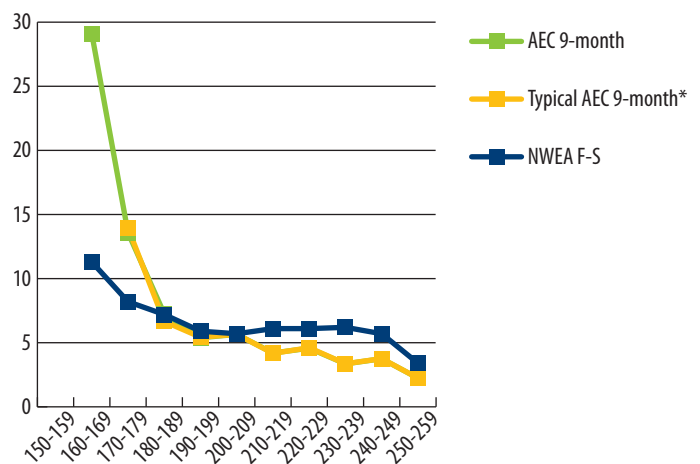


FIGURE 4. AVERAGE 7TH GRADE* RIT 9-MONTH GROWTH IN MATHEMATICS FOR NWEA NORMING AND AEC STUDENTS



EIGHTH GRADE READING

Eighth grade RIT growth for reading, revealed no significant differences between the two AEC groups during the 12-month testing interval (Figure 5). Additionally, both groups fall below the two NWEA norming samples (fall-to-fall and spring-to-spring) for pre-scores in the middle of the distribution. Trends were harder to

distinguish at the lower end of the scoring distribution.

Reading RIT growth scores over the 9-month testing interval (Figure 6) for the “typical” AEC group were significantly lower than growth seen for the NWEA fall-to-spring norming sample.

FIGURE 5. AVERAGE 8TH GRADE* RIT 12-MONTH GROWTH IN READING FOR NWEA NORMING AND AEC STUDENTS

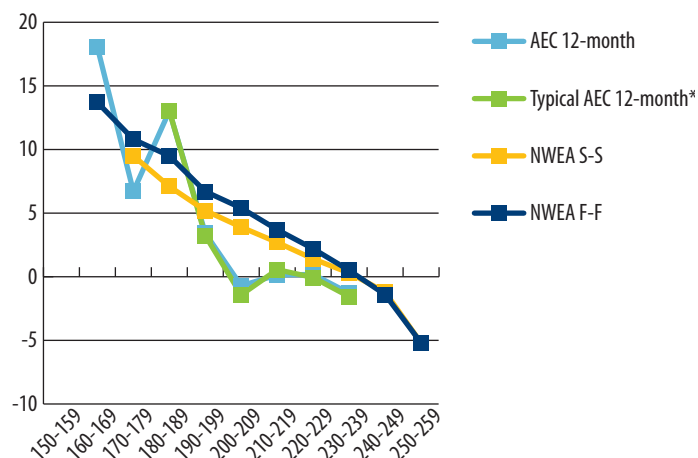
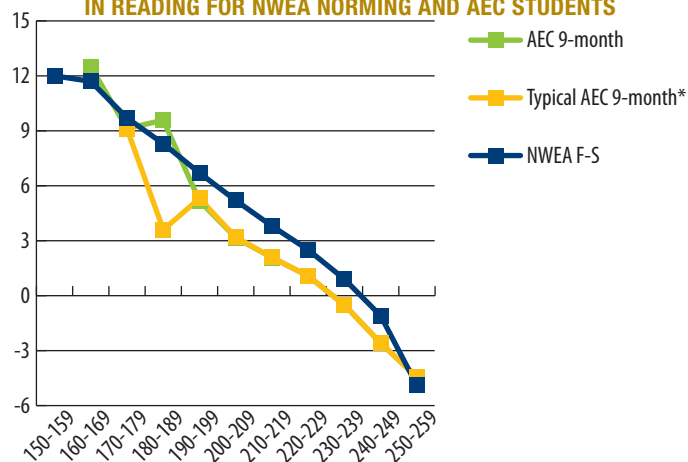


FIGURE 6. AVERAGE 8TH GRADE* RIT 9-MONTH GROWTH IN READING FOR NWEA NORMING AND AEC STUDENTS



EIGHTH GRADE MATHEMATICS

Growth for both 12- and 9-month RIT growth in eighth grade mathematics reveals no significant differences between the two AEC samples (Figures 7 and 8).

NWEA norming samples also showed larger RIT growth when compared to these two groups.

FIGURE 7. AVERAGE 8TH GRADE* RIT 12-MONTH GROWTH IN MATHEMATICS FOR NWEA NORMING AND AEC STUDENTS

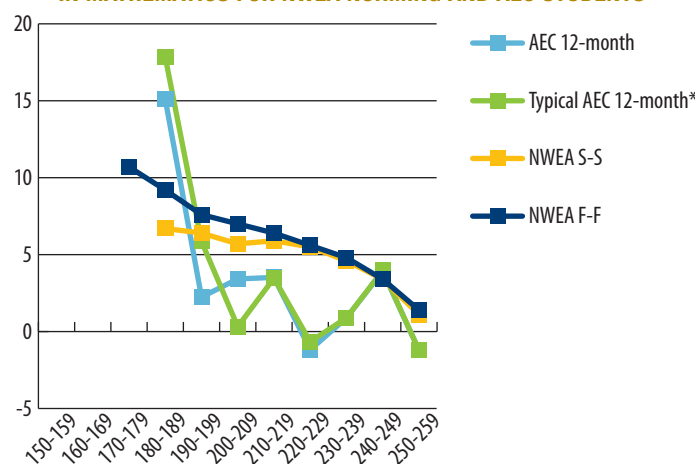
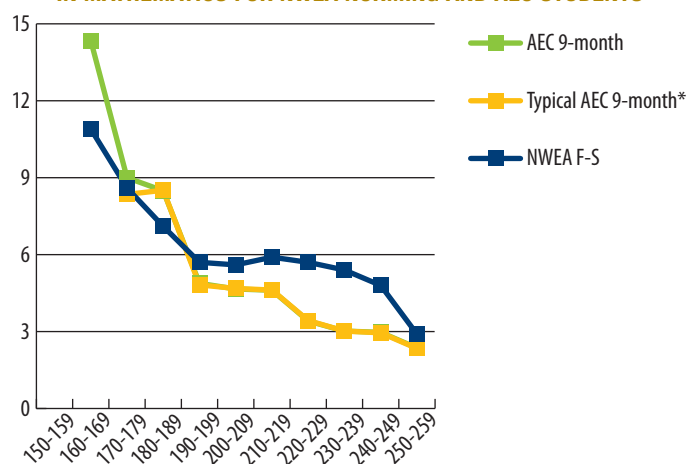


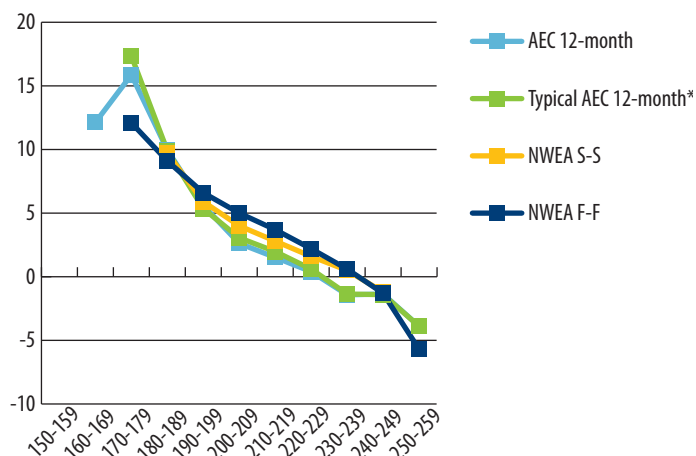
FIGURE 8. AVERAGE 8TH GRADE* RIT 9-MONTH GROWTH IN MATHEMATICS FOR NWEA NORMING AND AEC STUDENTS



NINTH GRADE READING

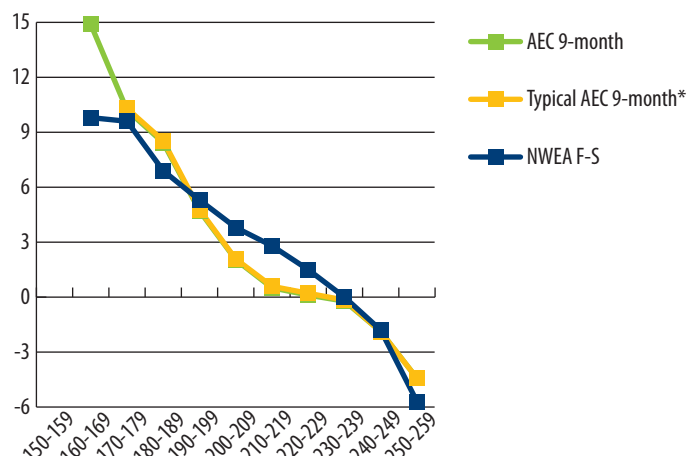
Little difference is seen between the two NWEA norming groups and little difference is seen between the two AEC norming samples when comparing RIT growth over the 12-month testing interval for 9th grade reading MAP scores (Figure 9). Additionally, the NWEA norming sample has higher growth on the MAP test when compared to the two AEC norming samples.

FIGURE 9. AVERAGE 9TH GRADE* RIT 12-MONTH GROWTH IN READING FOR NWEA NORMING AND AEC STUDENTS



When looking at RIT growth over the 9-month testing interval (Figure 10), it is clear that the “typical” AEC norming sample is showing growth lower than that of the NWEA norming sample; however, it is unclear of any pattern occurring between the NWEA norming sample and the all-inclusive AEC group.

FIGURE 10. AVERAGE 9TH GRADE* RIT 9-MONTH GROWTH IN READING FOR NWEA NORMING AND AEC STUDENTS



NINTH GRADE MATHEMATICS

Those differences observed for 12-month RIT growth in 9th mathematics are very similar to those seen for 9th grade reading RIT growth patterns, however pronounced (Figure 11). More similarities were seen between the two AEC norming samples

and AEC RIT growth was generally lower when compared to the NWEA norming sample over the 9-month testing interval in 9th grade mathematics (Figure 12).

FIGURE 11. AVERAGE 9TH GRADE* RIT 12-MONTH GROWTH IN MATHEMATICS FOR NWEA NORMING AND AEC STUDENTS

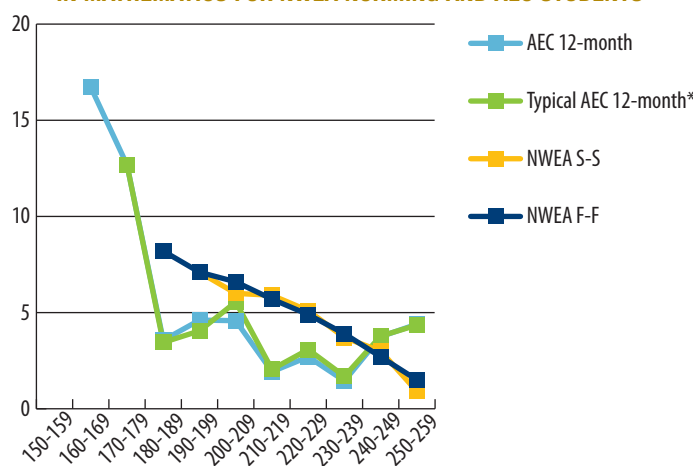
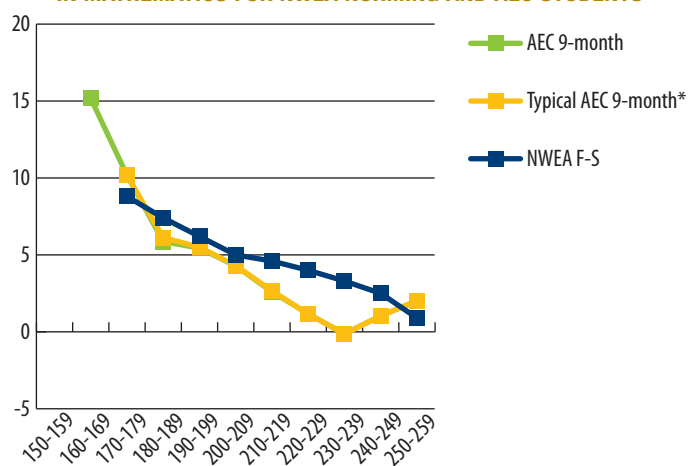


FIGURE 12. AVERAGE 9TH GRADE* RIT 9-MONTH GROWTH IN MATHEMATICS FOR NWEA NORMING AND AEC STUDENTS



TENTH GRADE READING

No significant differences were seen between the two AEC norming samples (Figure 13), with higher growth seen at the lower end of the pre-score distribution and negative RIT growth observed at the upper end of the pre-score distribution.

AEC norming groups displayed lower RIT growth than that seen for the NWEA norming sample for 10th grade reading over the 9-month testing interval (Figure 14).

FIGURE 13. AEC 10TH GRADE* RIT 12-MONTH GROWTH IN READING FOR AEC STUDENTS

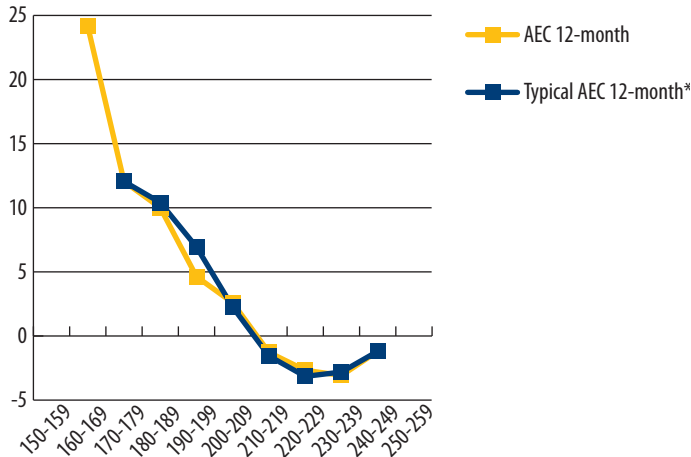
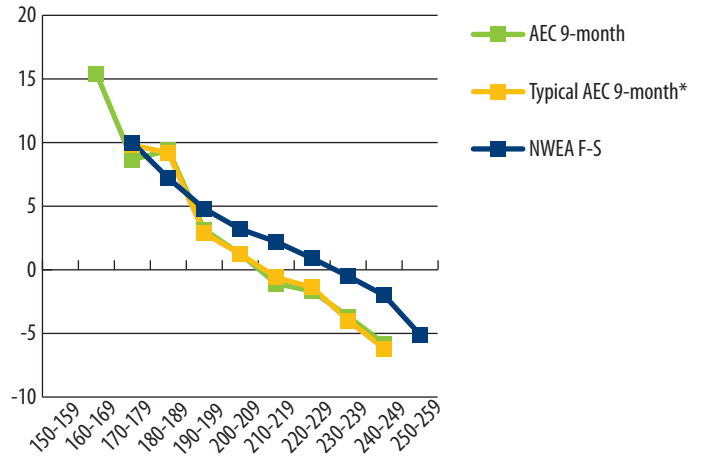


FIGURE 14. AEC 10TH GRADE* RIT 9-MONTH GROWTH IN READING FOR NWEA NORMING AND AEC STUDENTS



NOTE: As there is no NWEA norming sample for 10th grade RIT growth in reading, Figure 13 only displays the RIT growth pattern for the two AEC samples—the sample including students with typical grade progressions only and the sample that included students that followed both typical and non-typical grade progressions (i.e., those that are repeat a grade or those that are promoted by more than one grade level).

TENTH GRADE MATHEMATICS

Little difference is observed between the AEC norming groups over the 12-month testing interval for 10th grade mathematics (Figure 15), however it is consistent with the growth pattern seen in previous charts with higher growth observed at the lower end of the pre-score distribution.

When looking at RIT growth differences over the 9-month testing interval for 10th grade mathematics, the NWEA norming sample shows the highest RIT growth, with the all-inclusive AEC norming sample displaying the lowest. Students with typical grade progression in the AEC norming sample, displayed growth between these two other groups.

FIGURE 15. AEC 10TH GRADE* RIT 12-MONTH GROWTH IN MATHEMATICS FOR AEC STUDENTS

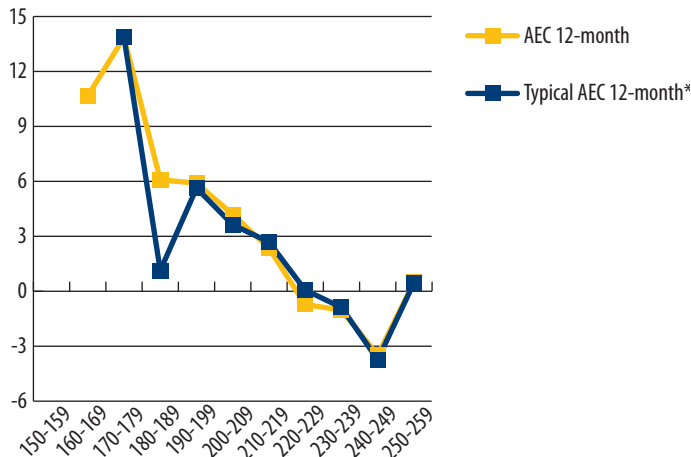
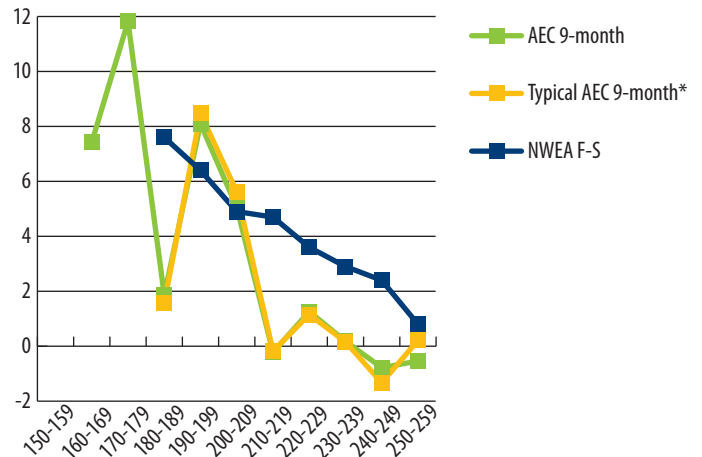


FIGURE 16. AEC 10TH GRADE* RIT 9-MONTH GROWTH IN MATHEMATICS FOR NWEA NORMING AND AEC STUDENTS



NOTE: As there is no NWEA norming sample for 10th grade RIT growth in mathematics at a 12-month interval, Figure 15 only displays the RIT growth pattern for the two AEC samples.

ELEVENTH GRADE READING

RIT growth for the “typical” AEC norming sample and the all-inclusive AEC norming sample did not show much variation for

both the 12- and 9-month testing intervals in 11th grade reading (Figures 17 and 18).

FIGURE 17. AEC 11TH GRADE* RIT 12-MONTH GROWTH IN READING FOR AEC STUDENTS

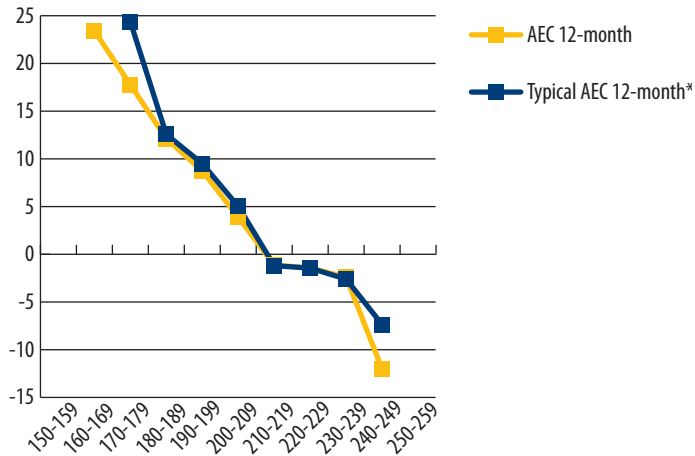
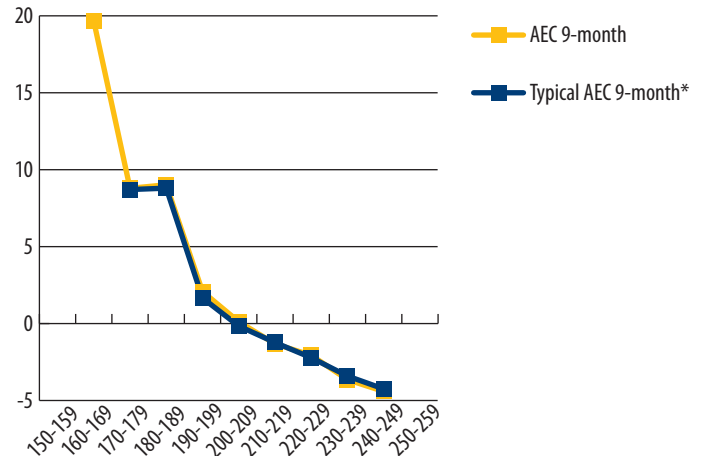


FIGURE 18. AEC 11TH GRADE* RIT 9-MONTH GROWTH IN READING FOR AEC STUDENTS



NOTE: As there is no NWEA norming sample for 11th grade RIT growth in reading, the above charts only displays the RIT growth pattern for the two AEC samples.

ELEVENTH GRADE MATHEMATICS

There are few differences between RIT growth seen for these two samples over both the 12- and 9-month testing intervals (Figures 19 and 20). For both distributions, higher RIT growth is seen at

the lower end of the distribution, with low pre-scores resulting in higher growth over the 9-month testing interval.

FIGURE 19. AEC 11TH GRADE* RIT 12-MONTH GROWTH IN MATHEMATICS FOR AEC STUDENTS

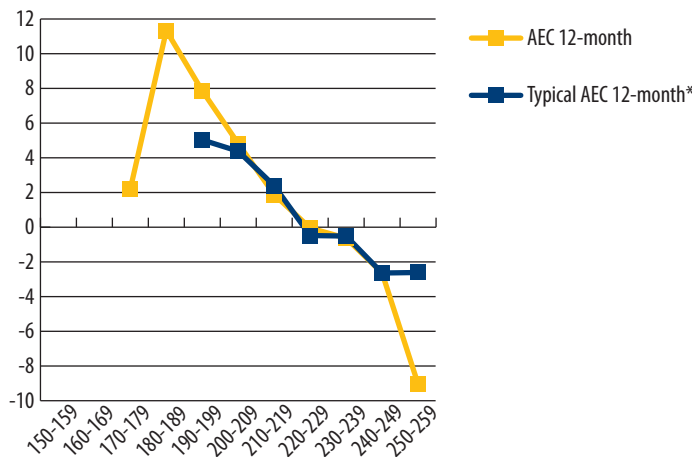
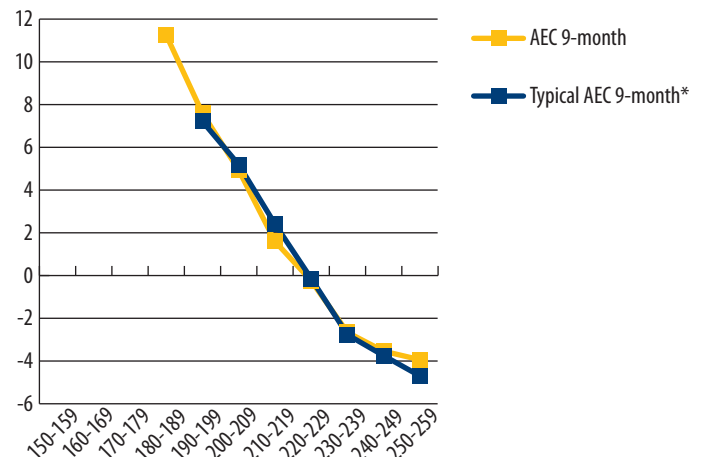


FIGURE 20. AEC 11TH GRADE* RIT 9-MONTH GROWTH IN MATHEMATICS FOR AEC STUDENTS

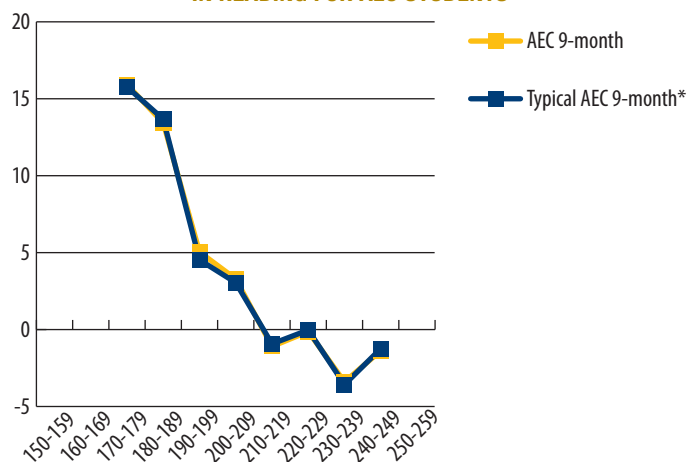


NOTE: As there is no NWEA norming sample for 11th grade RIT growth in reading, the previous charts only display the RIT growth pattern for the two AEC samples.

TWELFTH GRADE READING

RIT growth patterns from the low end of the distribution to the high end of the distribution are similar for both groups with the “typical” AEC group showing higher RIT growth at the lower end of the distribution (Figure 21).

FIGURE 21. AEC 12TH GRADE* RIT 9-MONTH GROWTH IN READING FOR AEC STUDENTS

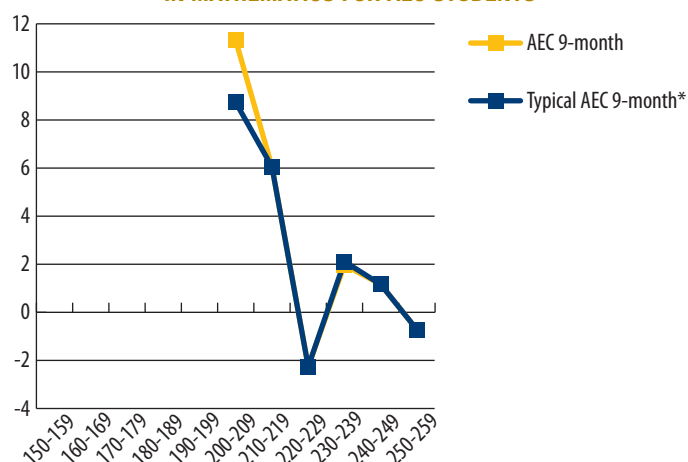


NOTE: As there is no NWEA norming sample for 12th grade RIT growth in reading, the previous chart only displays the RIT growth pattern for the two AEC samples.

TWELFTH GRADE MATHEMATICS

As was seen 12th grade reading RIT growth, both AEC samples have a similar pattern of RIT growth with 9-month RIT growth for 12th grade reading performing better on the lower end of the scoring distribution (Figure 22).

FIGURE 22. AEC 12TH GRADE* RIT 9-MONTH GROWTH IN MATHEMATICS FOR AEC STUDENTS



NOTE: As there is no NWEA norming sample for 12th grade RIT growth in mathematics, the previous chart only displays the RIT growth pattern for the two AEC samples.



Conclusion

This investigation revealed clear discrepancies between the performance and growth of the 2005 NWEA norming sample and that of the two AEC samples in the high school grades. In most cases, the NWEA 9th and 10th grade norming samples outperformed the 9th and 10th grade students attending AECs between 2005 and 2008.

Due to the discrepancy between RIT growth for high school students attending AECs and that of the NWEA norming sample, it is recommended that AEC high school personnel utilize the above findings in goal setting in the classroom and at the school level. Caution should be used and low numbers of students recognized in using these values, however, they appear to be more accurate than those provided by NWEA for AEC students.

While the 7th and 8th grade AEC students also showed slightly lower growth than the NWEA sample, these differences were well within a standard error. Therefore, the NWEA growth tables remain a good source of reference for setting goals for AEC students in the middle school grades. However, spring RIT scores for 7th and 8th grade students attending AECs may be better compared to the AEC averages supplied in this paper (Table 2), especially if those students entered the AEC mid-year.

Further investigations should be conducted with larger samples of students from all states to gain a more accurate picture of the AEC norming sample. It would be optimal to look at normative growth values for this population for each individual RIT value, rather than for 10 point RIT ranges.

Also, since the inception of this investigation, NWEA has released a new set of norms (NWEA, 2008). Therefore, it would be beneficial to look at comparisons between AEC performance on the MAP assessments and that of the NWEA 2008 norming group.

References

- Northwest Evaluation Association (August, 2006). Alternative Schools Guidelines for Measures of Academic Progress (MAP) Testing.
- Northwest Evaluation Association. Standard Error of Measurement. Available at (<http://www.nwea.org/support/article/555>)



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