2015 ALTERNATIVE NORMS USING NWEA MAP

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Contents

Purpose

The purpose of this report is to provide alternative schools with a set of alternative "norms" for the Northwest Education Association's (NWEA) Measures of Academic Progress (MAP) assessments. Each state in the US has a different definition of schools and programs that constitute "alternative", but for the purposes of this report we define alternative schools as those serving a disproportionately high number of students that are at high-risk of academic failure and dropping out of school. The typical student attending an alternative education campus (or AEC) is overage for his or her grade level, and many have dropped out of school for a period of time before returning to try to complete their high school credentials.

In 2009, the author of this report, Dr. Jody Ernst, began conducting research into the typical growth trajectories of student attending AECs across the country[iii], finding that high-risk students (or students attending AECs) tended to grow at a slower pace than their same grade peers attending traditional middle and high schools in Colorado and Arizona. Following on those findings, Dr. Ernst explored the growth trajectories of AEC students across seven states, using the NWEA math, reading, and language usage assessments. Those results were similar to the prior findings, showing that AEC students grew at a slower pace than the norming sample on each of the NWEA MAP assessments—at least in grade 9 and 10.

To assist AECs in setting internal and external goals for their students, Dr. Ernst and her colleague Jennifer Turnbull developed a set of "AEC Norms"[iii]. Those norms were produced in 2010 and were prepared using the NWEA 2005 norming sample. This report provides an updated set of "AEC Norms" utilizing NWEA's 2015 norms as the comparison set and benchmark for grade level performance and growth.

Methodology

Sampling method

Data from all 50 states were collected by Momentum Strategy & Research on 1) the policies used to define alternative schools and programs, 2) the policies used to define student eligibility to attend an alternative school or program, and 3) the schools and programs that were determined in each state to be alternative. This collection effort yielded a list of over 6,000 schools and programs.

As mentioned previously, each state defines alternative schools and students' eligibility differently. Therefore, some states' alternative school list required further investigation to cull the list for any school or program that does not fit into the general definition stated in the previous section. The following types of schools/programs have been removed from the list—either entirely or moved to a separate list for future research:

Those removed entirely include:

- Most elementary, K-6, or K-12 schools, unless they were stated to specifically serve adjudicated youth or were schools/programs within child welfare facilities;
- All schools that were readily identified as a Montessori, Expeditionary Learning, Early Childhood Learning Center, and home school resource centers
- Most full-time online schools, unless the school had a stated mission to serve prior dropouts, over age students, or a similar high-risk student characteristic

- Some schools for which a web review did not make readily apparent the schools mission to serve high-risk students[1] .

Those moved to a different list for further research were those that were identified as special education schools, programs, and/or facilities, such as schools for the hearing impaired, autistic, or severely cognitively impaired.

The resulting list of alternative schools and programs includes over 4200 entities. Using this list, we collected the National Center for Education Statistics (NCES) school identification codes for each state's alternative schools and were successful in matching 3,855 entities.

Momentum supplied the list of 3,855 NCES IDs to NWEA's data and research division and received back masked student level data from across 30 states and over 300 schools, which included all assessment occasions between fall of 2011-2012 and spring of 2014-2015. (A table outlining the sample of students and schools included in the analysis for this report can be found in Appendix A).

The resulting AEC sample includes over 70,000 students and 300 schools for both the math and reading MAP assessments, and just below 30,000 students (in 213 schools) for the language usage assessment.

Between the fall of 2011-12 and the spring of 2014-15, there were 12 possible assessment occasions (not including summer assessments, which we did not collect) for students to participate in. According to NWEA's business rules, if a student had multiple assessments during the same testing window (e.g., fall of 2014) only the student's score with the lowest standard error was provided. Therefore, no single student had more than one RIT per subject, per test window in this study. However, we do have longitudinal data for some students. (Appendix B shows the number, and percent, of AEC students that took one or more MAP assessments while enrolled in a single AEC).[2]

The proportion of tested AEC students with multiple NWEA assessment records over time was more limited for language usage (55%) and reading (43%), than for math (94%).

NWEA Partnership

While NWEA saw the logic in conducting the research and analysis provided in this report, and donated the data to Momentum to make it possible, none of the results presented herein should be viewed as NWEA "norms" or "standards". All analysis were conducted by Momentum, and all statements made in this report should solely be attributed to Momentum.

Use of this Document

This document is for informational purposes and drawing conclusions about the quality of alternative schools based on these results should be made with great caution. While a sample of over 70,000 students is seemingly large, true norming samples run in the hundreds of thousands of students. This document, therefore, is best thought of as a guide to inform interested parties on the typical performance and growth among alternative students.

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[1] Website searches, thus far, have been limited to states in which Momentum has worked, such as Minnesota, Connecticut, New York, Georgia, and New Mexico, as many state lists are quite large and would be time intensive to review. Where resources are available, we conduct a thorough review of all states alternative schools.

[2] If the same student attended more than one of the AECs in this sample, we were unaware of it. There were no duplicate student IDs across schools.

In this report, we have included students in grade 12, though the NWEA assessments are developed for student only through 10th or 11th grade, depending on the subject area. We include 12th grade AEC students because many AECs use NWEA to gauge progress of students that are often overage and/or academically behind their same grade peers. Given the propensity of AEC to serve and assess 12th grade students, we provide the typical performance of those students here—again as a guide to be used as informational.

AVERAGE RIT: AEC STUDENTs VS. NWEA 2015 NORMING SAMPLE

In the following tables, the comparative grade level RIT averages (as well as the standard deviations) for the AEC sample and the NWEA 2015 norming sample[3] are provided for math (Table 1), reading (Table 3), and language usage (Table 5). Each table include the average RIT for the fall, winter, and spring assessment windows. Tables 2, 4, and 6 show the mean differences in RIT between AEC students and the NWEA 2015 norming sample in math, reading, and language usage, respectively.

Math

Table 1. Average NWEA RIT for Mathematics during the Fall, Winter, and Spring Assessment Windows, for AEC students and the NWEA 2015 Norming Samples

Grade	Fall (Begin-Year)		Winter (Mid-Year)		Spring (End-Year)	
	AEC Mean 2015 (Std. Dev.)	NWEA 2015 Mean (SD)	AEC Mean 2015 (Std. Dev.)	NWEA 2015 Mean (SD)	AEC Mean 2015 (Std. Dev.)	NWEA 2015 Mean (SD)
6th	208.7 (18.0)	217.6 (15.5)	210.6 (19.3)	222.1 (16.0)	212.2 (19.4)	225.3 (16.7)
7th	214.5 (17.7)	222.6 (16.6)	216.2 (18.4)	226.1 (18.0)	218.3 (19.6)	228.6 (17.7)
8th	216.9 (18.9)	226.3 (17.9)	218.9 (18.8)	229.1 (18.3)	219.8 (20.3)	230.9 (19.1)
9th	216.4 (18.1)	230.3 (18.1)	216.4 (18.1)	232.2 (18.6)	217.3 (18.7)	233.4 (19.5)
10th	217.7 (18.4)	230.1 (19.6)	217.8 (18.3)	231.5 (20.0)	219.2 (19.0)	232.4 (21.0)
11th	218.8 (18.4)	233.3 (20.0)	219.9 (18.0)	234.4 (20.2)	219.3 (19.2)	235.0 (21.3)
12th	219.6 (18.4)	-	220.1 (18.4)	-	220.1 (19.3)	-

AEC students in grades six through 11, on average, score well below the average for students in the same grades from the NWEA 2015 norming sample, in math. Table 2 shows the average difference by grade level and assessment period. These differences amount to AEC students scoring between one-half and three-quarters of a standard deviation below the NWEA norming sample, by grade.

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[3] The 2015 norms can be found in the *2015 NWEA Measures of Academic Progress Normative Data* report published by Northwest Education Association. All figures represented throughout this report as "NWEA norms" or "NWEA norming data" were transcribed directly from that report.

Table 2. Difference in Ave Math RIT Between AEC Students and the NWEA 2015 Norming Sample

Grade	Fall	Winter	Spring
6th	-8.9	-11.5	-13.1
7th	-8.1	-9.9	-10.3
8th	-9.4	-10.2	-11.1
9th	-13.9	-15.8	-16.1
10th	-12.4	-13.7	-13.2
11th	-14.5	-14.5	-15.7

Reading

Table 3. Average NWEA RIT for Reading during the Fall, Winter, and Spring Assessment Windows, for the AEC and NWEA Norming Samples

Grade	Fall (Begin-Year)		Winter (Mid-Year)		Spring (End-Year)	
	AEC Mean 2015 (SD)	NWEA 2015 Mean (SD)	AEC Mean 2015 (Std. Dev.)	NWEA 2015 Mean (SD)	AEC Mean 2015 (Std. Dev.)	NWEA 2015 Mean (SD)
6th	202.8 (19.7)	211.0 (14.9)	203.0 (19.8)	214.2 (14.5)	204.4 (19.5)	215.8 (14.7)
7th	207.0 (17.7)	214.4 (15.3)	207.6 (18.1)	216.9 (15.0)	210.1 (18.0)	218.2 (15.1)
8th	208.8 (18.1)	217.2 (15.7)	209.7 (17.6)	219.1 (15.4)	211.2 (17.9)	220.1 (15.7)
9th	210.3 (17.8)	220.2 (15.7)	210.0 (18.1)	221.3 (15.5)	210.2 (18.4)	221.9 (16.2)
10th	210.6 (18.0)	220.4 (16.9)	210.2 (18.4)	221.0 (16.7)	211.3 (18.9)	221.2 (17.5)
11th	212.1 (17.9)	222.6 (16.8)	212.5 (17.7)	222.7 (16.5)	212.2 (18.6)	222.3 (17.7)
12th	213.1 (17.7)	-	213.0 (17.5)	-	212.6 (18.6)	-

As with NWEA math, AEC students in grades six through 11, on average, score well below the average for students in the same grades from the NWEA 2015 norming sample, in reading; and often by more than half a standard deviation from the NWEA norm.

Table 4. Difference in Ave Reading RIT Between AEC Students and the NWEA 2015 Norming Sample

Grade	Fall	Winter	Spring
6th	-8.2	-11.2	-11.4
7th	-7.4	-9.3	-8.1
8th	-8.4	-9.4	-8.9
9th	-9.9	-11.3	-11.7
10th	-9.8	-10.8	-9.9
11th	-10.5	-10.2	-10.1

Table 5. Average NWEA RIT for Language Usage during the Fall, Winter, and Spring Assessment Windows, for the AEC and NWEA Norming Samples

Grade	Fall (Begin-Year)		Winter (Mid-Year)		Spring (End-Year)	
	AEC Mean 2015 (SD)	NWEA 2015 Mean (SD)	AEC Mean 2015 (Std. Dev.)	NWEA 2015 Mean (SD)	AEC Mean 2015 (Std. Dev.)	NWEA 2015 Mean (SD)
6th	204.1 (17.8)	210.7 (13.8)	204.9 (18.0)	213.9 (13.3)	204.6 (19.0)	215.3 (13.4)
7th	207.4 (16.5)	214.0 (13.8)	209.5 (15.7)	216.5 (13.5)	209.9 (16.6)	217.6 (13.7)
8th	208.9 (16.8)	216.2 (14.2)	210.6 (15.9)	218.1 (13.9)	208.6 (17.1)	219.0 (14.3)
9th	209.5 (16.4)	218.4 (14.2)	209.8 (16.3)	219.7 (14.0)	210.9 (15.8)	220.4 (14.5)
10th	210.3 (15.9)	218.9 (15.0)	210.2 (16.3)	219.7 (15.0)	212.4 (15.7)	220.1 (15.7)
11th	211.8 (15.6)	221.5 (15.0)	212.8 (15.5)	222.1 (14.9)	213.2 (16.0)	222.1 (15.8)
12th	212.6 (15.4)	-	213.9 (15.0)	-	214.3 (15.0)	-

Even with half the number of students taking the NWEA language usage MAP, results are found to parallel those of math and reading (see Table 6).

Table 6. Difference in Ave Language Usage RIT Between AEC Students and the NWEA 2015 Norming Sample

Grade	Fall	Winter	Spring
6th	-6.6	-9	-10.7
7th	-6.6	-7	-7.7
8th	-7.3	-7.5	-10.4
9th	-8.9	-9.9	-9.5
10th	-8.6	-9.5	-7.7
11th	-9.7	-9.3	-8.9

ALTERNATIVE STUDENTS' FALL GRADE LEVEL EQUIVALENCY RIT

To attempt to understand the differences we found in average RIT, by grade, in the section above, we looked at AEC students' incoming grade level equivalent (GLE) in the fall compared to the students assigned grade level.

To compute students' GLE, we used the students' fall MAP RIT and NWEA's 2015 RIT norming tables.[iv] GLEs were defined as the average RIT between the fall (or Begin-Year) of one grade level and the average RIT for the fall of the next grade level, according to the 2015 RIT norming tables. For example, in reading, the average 'Begin-Year' RIT for the norming sample was 198.2 for fourth grade students and the average 'Begin-Year' RIT for fifth graders in the norming sample was 205.7. For the purposes of this study, we assigned a Fall GLE of fourth grade to all AEC students that scored between 198.2 and 205.6 in the beginning of the school year (i.e., on their fall NWEA assessment).

Tables 7, 8, and 9 show the number of AEC students in grades six through 12 and their corresponding Fall GLEs in math, reading, and language use. Results are combined in each table for the four years of data (2011-12 to 2014-15). Figures 1-3, then show the corresponding percent of AEC students in grades 6-12 that scored above, at, or below grade level.
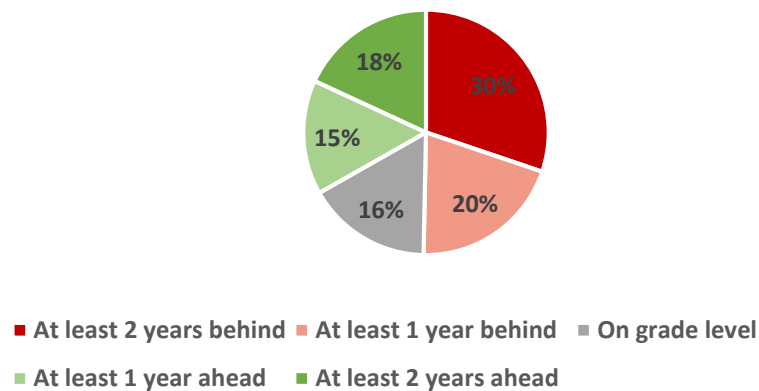
Math

Table 7. Number of Students by Fall Grade Level Equivalent RIT in NWEA Math and their Assigned Grade Level

Fall GLE: NWEA Math	Students Actual Grade							Total
	6th	7th	8th	9th	10th	11th	12th	
K	2	2	5	11	15	12	14	61
1	12	22	26	55	79	61	82	337
2	31	63	85	134	203	164	203	883
3	75	128	143	314	409	381	445	1895
4	78	217	221	558	678	639	728	3119
5	67	165	256	593	746	673	809	3309
6	66	189	238	517	647	654	777	3088
7	53	133	170	380	509	477	477	2199
8	32	122	141	326	470	408	481	1980
10	67	174	219	471	624	629	741	2925
11	372	1549	2205	4813	7025	7438	9069	32471
Above 11	4	16	71	108	198	215	303	915
Total	859	2780	3780	8280	11603	11751	14129	53182

Table 7 shows the cross-tabulation of AEC students' actual grade level and our computed GLE, based on the NWEA mathematics assessment. Figure 1 then shows the relative proportion of AEC students with fall GLEs in math that fall at grade level, above grade level by one and two years, and below grade level by one and two years.

Figure 1. Percentage of AEC students scoring At, Above, or Below Grade Level in the Fall, using NWEA Math Assessments for 2011-12 to 2014-15

- ■ At least 2 years behind ■ At least 1 year behind ■ On grade level
- ■ At least 1 year ahead ■ At least 2 years ahead

According to these data, 50 percent of AEC students across the country are at least one year behind their grade level peers in the fall.
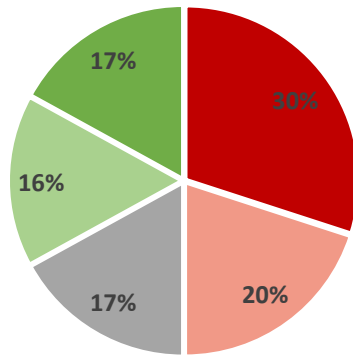
Reading

Similar to Table 7 and Figure 1, Table 8 shows the cross-tabulation of AEC students' actual grade level and our computed GLE, based on the NWEA reading assessment, and Figure 2 shows the relative proportion of AEC students with fall GLEs in math that fall at grade level, above grade level by one and two years, and below grade level by one and two years.

Table 8. NWEA MAP, Reading, Fall Grade Level Equivalent by Student Grade, Grades 6-12 only

Fall GLE: NWEA Reading	Students Actual Grade							Total
	6th	7th	8th	9th	10th	11th	12th	
K	7	3	7	18	21	30	21	107
1	25	34	55	83	124	110	104	535
2	44	111	108	232	325	291	317	1428
3	58	133	158	330	477	437	517	2110
4	72	169	214	457	555	520	673	2660
5	61	155	231	469	620	583	698	2817
6	41	96	132	362	452	393	486	1962
7	52	121	168	417	591	596	681	2626
8	17	87	135	249	324	345	399	1556
10	78	310	444	1071	1554	1656	2130	7243
11	403	1428	1953	4650	6364	6716	8399	29913
Above 11	6	30	75	226	325	395	619	1676
Total	864	2677	3680	8564	11732	12072	15044	54633

Figure 2. Percentage of AEC students scoring At, Above, or Below Grade Level in the Fall, using NWEA Reading Assessments for 2011-12 to 2014-15

- ■ At least 2 years behind ■ At least 1 year behind ■ On grade level
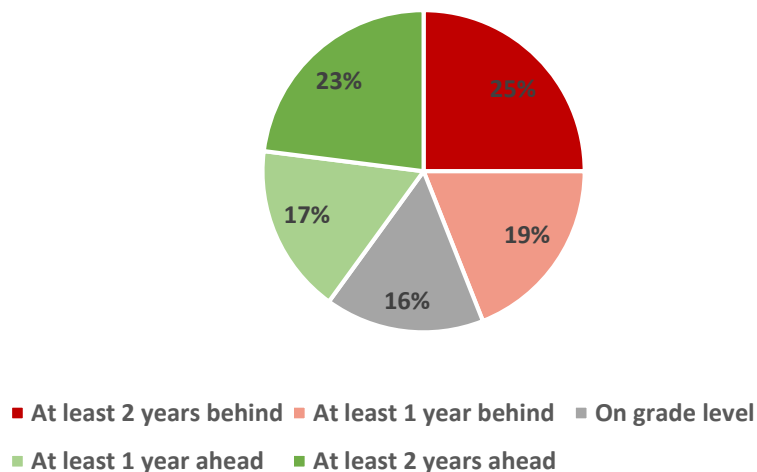- ■ At least 1 year ahead ■ At least 2 years ahead

As with math, NWEA reading assessment data suggest that 50 percent of AEC students are at least one year behind in reading in the fall of each academic year.

Language Usage

Table 9. NWEA MAP, Language Usage, Fall Grade Level Equivalent by Student Grade, Grades 6-12 only

Fall GLE: NWEA Lang Use	Students Actual Grade							Total
	6th	7th	8th	9th	10th	11th	12th	
2	48	97	100	165	196	135	163	904
3	36	94	80	170	203	160	178	921
4	51	91	117	237	276	211	228	1211
5	56	117	120	214	296	257	270	1330
6	39	96	102	184	251	214	245	1131
7	42	69	74	131	180	144	156	796
8	23	65	80	173	211	166	175	893
10	57	132	155	248	350	273	332	1547
11	386	1203	1424	2771	3846	3566	4335	17531
Above 11	4	21	44	69	95	101	157	491
Total	742	1985	2296	4362	5904	5227	6239	26755

Figure 3. Percentage of AEC students scoring At, Above, or Below Grade Level in the Fall, using NWEA Language Usage Assessments for 2011-12 to 2014-15

- ■ At least 2 years behind ■ At least 1 year behind ■ On grade level
- ■ At least 1 year ahead ■ At least 2 years ahead

The NWEA language usage data suggests that a smaller proportion of AEC students lag behind their grade level peers. However, it should be noted that far fewer AECs use the NWEA language usage assessments than those that use NWEA's reading and math assessments. As shown in the total figures for tables 7-9, fewer than half as many AEC students are represented in the language usage assessment data (26,755 student records compared to 53,182 for math and 54,633 for reading).

Unfortunately, because the data we received is masked at both the school and student levels, Momentum knows nothing about the schools in the data set. Therefore, it is not possible to discern whether systematic differences exist between the schools that use the math and/or reading NWEA assessments but do not use the language usage assessment. Thus, we offer this information as a cautionary note not to assume that AEC students are any farther behind, or ahead, in language usage than they are in math and reading.

AVERAGE RIT GROWTH: AEC STUDENTS VS. NWEA 2015 NORMING SAMPLE

The tables in this section shows how students attending the AECs that use NWEA MAP assessments grew, on average, between each assessment occasion, as compared to their grade level peers. Tables 10, 12, and 14 show the average growth results for begin-to-mid year (fall to winter), mid-to-end year (winter to spring), and begin-to-end year (fall to spring) for math, reading, and language usage, respectively, and Tables 11, 13, and 15 show the differences between the averages for each subject.

Mathematics

Tables 10 and 11 show the results for how RIT growth for students in grades six through 11 compare between students in the AEC sample and the NWEA 2015 norming sample. Unlike average grade level RIT comparisons, where nearly all differences showed AECs underperforming their NWEA sample

counterparts, the differences in growth vary, with one-third of the growth differences showing the AEC sample growing slightly more than the same grade NWEA sample. Eighth grade AEC students, in particular, showed stronger average growth in two of the three growth periods (winter to spring, and fall to spring).

Table 10.   2015 Average RIT Growth in Mathematics, AEC Sample and NWEA Norming Sample

Grade	Fall to Winter (Begin-to-Mid Year)		Winter to Spring (Mid-to-End Year)		Fall to Spring (Begin-to-End Year)	
	AEC Mean (S.D.)	NWEA Mean (S.D.)	AEC Mean (S.D.)	NWEA Mean (S.D.)	AEC Mean (S.D.)	NWEA Mean (S.D.)
6th	4.4 (7.8)	4.4 (5.2)	1.7 (9.5)	3.3 (4.8)	5.1 (9.8)	7.7 (6.8)
7th	2.8 (8.5)	3.5 (5.1)	3.1 (8.7)	2.5 (4.8)	5.9 (9.7)	6.0 (6.6)
8th	2.4 (8.9)	2.9 (5.6)	2.5 (9.8)	1.8 (5.1)	5.2 (10.5)	4.6 (7.7)
9th	1.2 (10.5)	2 (5.8)	0.4 (12.3)	1.2 (5.2)	2.5 (12.0)	3.1 (8.2)
10th	0.8 (12.0)	1.5 (6.2)	0.5 (12.0)	0.9 (5.4)	2.3 (12.3)	2.3 (8.9)
Above 10th	9.0 (6.9)	-	3.6 (11.3)	-	18.8 (9.4)	-

While a majority of the differences were small, averaging less than a full RIT, sixth grade AEC students lagged their NWEA sample counterparts by 1.6 and 2.6 RIT in the winter to spring and fall to spring growth periods. Ninth grade was the only grade level in which the AEC students showed less growth across all growth periods.

Table 11. Differences in Average Math RIT Growth between the 2015 AEC and NWEA Norming Samples, by Grade and Growth Interval

Grade	Fall to Winter	Winter to Spring	Fall to Spring
6th	0	-1.6	-2.6
7th	-0.7	0.6	-0.1
8th	-0.5	0.7	0.6
9th	-0.8	-0.8	-0.6
10th	-0.7	-0.4	0

Reading

Tables 12 and 13 show the comparative growth results in reading RIT, between the AEC and NWEA samples.

Table 12. 2015 Average RIT Growth in Reading, AEC Sample and NWEA Norming Sample

Grade	Fall to Winter (Begin-to-Mid Year)		Winter to Spring (Mid-to-End Year)		Fall to Spring (Begin-to-End Year)	
	AEC Mean (S.D.)	NWEA Mean (S.D.)	AEC Mean (S.D.)	NWEA Mean (S.D.)	AEC Mean (S.D.)	NWEA Mean (S.D.)
6th	2.3 (9.7)	3.2 (5.6)	1.6 (8.8)	1.5 (5.2)	3.1 (9.8)	4.8 (7.19)
7th	9.5 (9.7)	2.5 (5.6)	3.2 (10.8)	1.3 (5.2)	4.7 (10.4)	3.7 (7.11)
8th	2.0 (10.6)	1.9 (6.1)	2.4 (11.0)	1.0 (5.5)	4.0 (11.3)	2.8 (8.19)
9th	0.3 (12.5)	1.1 (6.4)	0.6 (12.9)	0.6 (5.7)	1.9 (13.3)	1.7 (8.9)
10th	0.5 (14.1)	0.6 (6.7)	1.0 (13.5)	0.2 (5.9)	1.6 (14.1)	0.7 (9.7)
Above 10th	8.4 (8.3)	-	1.7 (13.0)	-	16.9 (9.7)	-

Average reading growth, for the most part, was stronger for the AEC sample than for the NWEA norming sample. In particular, AEC students' growth was equal to (difference of 0) or higher than the NWEA norming sample's growth in the winter to spring time period, and the growth differences were positive (i.e., higher than the NWEA sample) throughout the year for 7th and 8th graders.

Table 13. Differences in Average Math RIT Growth between the 2015 AEC and NWEA Norming Samples, by Grade and Growth Interval

Grade	Fall to Winter	Winter to Spring	Fall to Spring
6th	-0.9	0.1	-1.7
7th	7	1.9	1
8th	0.1	1.4	1.2
9th	-1.4	0	0.2
10th	-0.1	0.8	0.9

As in math, the sixth grade AEC averages fell behind those of the norming sample in two out of the three growth periods and were among the largest differences found.

Language Usage

The final student level growth comparisons are displayed in Tables 14 and 15, where the results for the RIT growth analysis for NWEA language usage are found. As noted earlier in the report, fewer AECs are utilizing the NWEA language usage assessments (N=213), as compared to the number using the NWEA math (N=337) and/or reading (N=321) assessments. In addition, 45% of the language usages test takers only took the assessment one time. Thus, growth results were not found for all grade levels or growth periods.

Table 14. 2015 Average RIT Growth in Language Usage, AEC Sample and NWEA Norming Sample

Grade	Fall to Winter (Begin-to-Mid Year)		Winter to Spring (Mid-to-End Year)		Fall to Spring (Begin-to-End Year)	
	AEC Mean (S.D.)	NWEA Mean (S.D.)	AEC Mean (S.D.)	NWEA Mean (S.D.)	AEC Mean (S.D.)	NWEA Mean (S.D.)
6th	2.6 (8.2)	3.2 (5.2)	1.8 (7.8)	1.3 (4.8)	4.3 (8.5)	4.5 (6.8)
7th	2.0 (8.3)	2.5 (5.1)	1.1 (9.9)	1.1 (4.8)	2.3 (10.7)	3.6 (6.6)
8th	1.1 (11.8)	1.9 (5.4)	1.8 (12.0)	1.0 (4.9)	2.9 (12.5)	2.9 (7.2)
9th	0.3 (12.8)	1.4 (5.7)	0.7 (11.3)	0.7 (5.1)	2.5 (11.7)	2.0 (7.8)
10th	-	0.8 (6.0)	0.4 (7.1)	0.4 (5.3)	-	1.2 (8.6)
Above 10th	-	-	1.9 (16.9)	-	-	-

Table 15. Differences in Average Math RIT Growth between the 2015 AEC and NWEA Norming Samples, by Grade and Growth Interval

Grade	Fall to Winter	Winter to Spring	Fall to Spring
6th	-0.6	0.5	-0.2
7th	-0.5	0	-1.3
8th	-0.8	0.1	0
9th	-1.1	0	0.5
10th		0	

As with reading, the winter to spring growth period was the strongest growth period for the AEC students, showing little difference between the average RIT growth of the NWEA norming sample, and those differences that were seen were positive. On the flip side, however, all differences in RIT growth for language usage were negative in the fall to winter growth period, for the AEC test takers.

Observed Trends

Taking the growth results together, the following trends emerge:

- AEC students lag their norming sample counter parts in the fall to winter time period and grow as well as or better than the NWEA norming sample in the winter to spring period.
    - Fall to spring growth results are nearly evenly split with respect to whether AEC students' growth lagged behind or was equal to or better than the NWEA sample (8 out of 14 AEC Fall to Spring comparisons were equal to or greater than the NWEA norming sample averages, 6 out of 14 were less than the NWEA sample averages).
- Sixth grade AEC students consistently grew at a slower rate than their NWEA sample counterparts.
    - In each of the three subjects, AEC sixth graders showed average RIT growth that lagged the NWEA sample in two of the three growth periods.

- Seventh and 8th grade AEC students tend to outgrow their NWEA counterparts—particularly in reading.
  - In 12 out of the 18 comparisons (3 per year, per grade, times 3 subjects) AEC students' average RIT growth was equal to or greater than the NWEA sample students in the same grades.
  - In all six reading growth comparisons, AEC middle schoolers outgrew the NWEA sample 7th and 8th grade students—often by more than a full RIT point. This pattern was also found in a previous NWEA analysis[v]

Based on these analysis, it may be appropriate for AECs serving grades 7 and 8 to continue to utilize the NWEA norming tables to set growth expectations for their students. AECs working with students in grades 6 or 9-12, however, may benefit from utilizing the average growth rates laid out in the tables above for setting alternative growth targets with their students—at least in math.

ALTERNATIVE SCHOOL GROWTH NORMS

This section outlines the results of analysis at the school level. Until this section, all analysis has been done at the student-level, which informs how students in specific grades or with particular grade level starting skills grow over time. The following tables show average growth among schools that have been identified as serving large proportions of high-risk students. As with the student level tables, results are presented for math (Table 16), reading (Table 17), and language usage (Table 18) and show the average school level growth for fall to winter (begin-to-mid year), winter to spring (mid-to-end year), and fall to spring (begin-to-end year). (Appendix C provides the summed number of alternative schools that made up the analysis for each growth occasion, across the four years, 2011-12 through 2014-15).

NWEA does not produce school-level growth norms for students assessed with the MAPS assessments in grades 11 and 12. However, since a majority of the AECs that Momentum has worked with over the last decade have tended to use NWEA and other short-cycle formative assessments with their older students, and there were a large number of AECs in the sample that had assessment data for 11th and 12th grades, we provide those here.

It should be noted that NWEA did not provide growth data for students in 11th and 12th grade. Rather we computed the growth for these students using the same methodology as NWEA does for students in grade K-10 (i.e., taking the difference of the RIT from the respective test occasions).

As provided in the NWEA school-level norming tables, we provide the averages and standard deviations for the growth found across schools serving each of the respective grade levels. As there was a great deal of variation in the number of AECs with assessment results across the four years, the averages were computed for each grade level each year. The resulting figures presented in the tables below are weighted averages, based on the number of schools with assessment results across the four years.

For example, the 6th grade average RIT growth was computed as follows:

$$\frac{\begin{array}{c}(\text{\# of schools w/ 6 grd assessments in 11-12} * \text{average 6 grd growth 11-12}) + (\text{\# of schools w/ 6 grd assessments in 12-13} * \text{average 6 grd growth 12-13}) + (\text{\# of} \\ \text{schools w/ 6 grd assessments in 13-14} * \text{average 6 grd growth 13-14}) + ((\text{\# of schools w/ 6 grd assessments in 14-15} * \text{average 6 grd growth 14-15})\end{array}}{\begin{array}{c}(\text{\# of schools w/ 6 grd assessments in 11-12}) + (\text{\# of schools w/ 6 grd assessments in 12-13}) + (\text{\# of schools w/ 6 grd assessments in 13-14}) + \\ (\text{\# of schools w/ 6 grd assessments in 14-15})\end{array}}$$

All AECs with the corresponding grade level were included in the analysis to get as robust an N as possible.

Average school-level math growth

Table 16. Average (Standard Deviation) School-Level AEC RIT Growth using NWEA Math, Compared to 2015 NWEA School Norms, by Grade Level

Grade Level	Fall to Winter (Begin-to-Mid Year)		Winter to Spring (Mid-to-End Year)		Fall to Spring (Begin-to-End Year)	
	AEC	NWEA	AEC	NWEA	AEC	NWEA
6th	2.7 (7.14)	4.4 (1.33)	2.7 (9.01)	3.0 (1.00)	4.5 (9.84)	7.7 (2.33)
7th	2.4 (8.50)	3.5 (1.22)	2.8 (8.75)	2.5 (0.92)	5.8 (9.53)	6.0 (2.13)
8th	2.4 (9.09)	2.9 (1.26)	2.3 (10.0)	1.8 (0.94)	5.3 (10.6)	4.6 (2.20)
9th	1.3 (10.4)	2.0 (1.36)	0.7 (11.12)	1.2 (1.02)	2.6 (11.9)	3.1 (2.38)
10th	1.0 (10.8)	1.5 (1.53)	0.7 (11.8)	1.0 (1.15)	2.4 (12.1)	2.3 (2.67)
11th	1.8 (11.2)	-	0.3 (11.7)	-	1.2 (12.8)	-
12th	1.0 (11.7)	-	1.0 (8.3)	-	1.6 (12.0)	-

Negative growth

Average school-level reading growth

Table 17. Average School-Level AEC Growth using NWEA Reading, Compared to 2015 NWEA School Norms, by Grade Level

Grade Level	Fall to Winter (Begin-to-Mid Year)		Winter to Spring (Mid-to-End Year)		Fall to Spring (Begin-to-End Year)	
	AEC	NWEA	AEC	NWEA	AEC	NWEA
6th	2.0 (9.2)	3.2 (1.1)	1.9 (8.3)	1.5 (0.8)	3.2 (9.8)	4.8 (1.9)
7th	2.2 (9.9)	2.5 (1.1)	3.2 (10.2)	1.3 (0.8)	4.7 (10.2)	3.7 (1.8)
8th	1.9 (10.5)	1.9 (1.3)	2.8 (10.2)	1.0 (1.0)	4.1 (10.6)	2.8 (2.3)
9th	0.1 (12.7)	1.1 (1.3)	0.9 (12.7)	0.6 (1.0)	1.8 (13.1)	1.7 (2.3)
10th	0.4 (13.7)	0.6 (1.6)	0.9 (13.3)	0.2 (1.2)	1.7 (13.6)	0.7 (2.8)
11th	1.2 (13.0)	-	0.3 (13.2)	-	0.7 (14.5)	-
12th	0.9 (12.7)	-	0.2 (13.0)	-	0.8 (13.9)	-

Negative growth

Average school-level language usage growth

Table 18. Average School-Level AEC Growth using NWEA Language Usage, Compared to 2015 NWEA School Norms, by Grade Level

Grade Level	Fall to Winter (Begin-to-Mid Year)		Winter to Spring (Mid-to-End Year)		Fall to Spring (Begin-to-End Year)	
	AEC	NWEA	AEC	NWEA	AEC	NWEA
6th	3.4 (7.3)	3.2 (101)	0.9 (9.6)	1.3 (0.8)	3.9 (9.2)	4.5 (1.8)
7th	3.6 (8.7)	2.5 (1.1)	2.3 (8.0)	1.1 (0.8)	4.7 (8.5)	3.6 (1.9)
8th	2.3 (8.2)	1.9 (1.1)	0.3 (9.9)	1.0 (0.8)	2.8 (11.4)	2.9 (1.9)
9th	1.7 (12.1)	1.4 (1.3)	1.8 (11.1)	0.7 (0.9)	4.6 (13.2)	2.0 (2.2)
10th	1.0 (11.7)	0.8 (1.4)	0.0 (11.6)	0.4 (1.1)	2.1 (12.8)	1.2 (2.5)
11th	2.0 (12.7)	-	0.2 (11.9)	-	2.9 (14.2)	-
12th	0.5 (11.8)	-	0.7 (10.7)	-	2.3 (11.0)	-

Negative growth

With rare exceptions, the average school-level growth achieved by AECs is lower than the average growth of the schools represented in the NWEA norming group. In some instances, such as the average winter to spring growth for 11th graders in all subject areas, the average for AEC growth is actually negative. This means that students' Spring RIT was lower than the RIT they received on the same assessment in the winter of the same year. Unfortunately, this is not an uncommon occurrence among students attending AECs and is something Momentum has observed in research on other short cycle-assessments as well.

While we do believe that the observation of "negative growth" among alternative students is more an issue of motivation and behavior, as opposed to loss of academic skill, we do feel it needs to be accounted for when setting school-level growth targets. Our research on NWEA and other third-party, short cycle assessments suggest that somewhere between 30 and 45 percent of AEC students will show declines in scores between the winter and spring assessments.

Appendix A: AEC Norming Sample

State	Math MAP Counts		Reading MAP Counts		Lang Usage MAP Counts	
	Number of Student Records	Number of AECs	Number of Student Records	Number of AECs	Number of Student Records	Number of AECs
AEC Norming Sample: Student and School Counts, by State and Subject Area Tested						
AK	2536	10	2463	9	2147	9
AZ	2670	3	2661	3	2357	3
CA	27952	99	30062	96	6083	64
CO	11760	37	11772	37	9781	35
CT	88	1	89	1	80	1
DE	106	1	114	1	0	0
FL	2010	6	2074	4	1133	5
GA	188	3	61	1	0	0
ID	2400	13	1835	10	711	7
IL	1239	10	1275	10	522	5
IN	355	2	353	2	349	2
IA	42	2	42	2	9	1
KY	2845	22	2804	21	1644	18
MD	154	1	137	1	0	0
MA	14	1	16	1	0	0
MI	1763	16	1771	16	753	11
MN	4147	28	4874	28	110	3
MT	209	1	210	1	188	1
NV	709	6	641	6	53	5
NJ	260	2	285	1	59	1
NM	483	4	478	4	257	4
NC	305	3	298	3	50	1
OH	605	2	635	2	51	1
TN	56	1	54	1	54	1
TX	1733	18	1854	16	939	11
UT	48	1	102	1	119	1
VA	244	3	266	2	0	0
WA	451	10	437	10	81	6
WI	3788	13	3816	13	182	1
WY	2740	18	2724	18	2088	16
Total	**71900**	**337**	**74203**	**321**	**29800**	**213**

Appendix B: Number of Test Occasions per AEC Student

	Number of Test Occasions in which AEC Students Participated while attending the AEC, by Subject					
	Math MAP		Reading MAP		Language Usage MAPS	
# of Test Occasions	# of Students	Percent of Test Takers	# of Students	Percent of Test Takers	# of Students	Percent of Test Takers
1	3972	6%	41944	57%	13377	45%
2	38923	54%	16182	22%	8097	27%
3	15072	21%	7576	10%	3661	12%
4	6696	9%	3423	5%	1900	6%
5	2921	4%	2319	3%	1244	4%
6	2142	3%	1327	2%	649	2%
7	948	1%	437	1%	383	1%
8	444	1%	360	0%	260	1%
9	352	0%	313	0%	116	0%
10	175	0%	109	0%	55	0%
11	227	0%	188	0%	37	0%
12	28	0%	25	0%	21	0%
Total	**71900**	**100%**	**74203**	**100%**	**29800**	**100%**

Appendix C: Number of AECs in School Level Growth Analysis

Number of AECs represented in the Math Growth Analysis (Table 16)

Grade Level	F-W # AEC	W-S # AEC	F-S # AEC
6th	204	59	92
7th	112	121	157
8th	149	163	206
9th	314	317	413
10th	365	344	469
11th	332	309	410
12th	302	248	335

Number of AECs represented in the Reading Growth Analysis (Table 17)

Grade Level	F-W # AEC	W-S # AEC	F-S # AEC
6th	65	60	86
7th	107	96	145
8th	142	115	186
9th	310	260	383
10th	353	297	434
11th	326	267	381
12th	296	213	297

Number of AECs represented in the Language Usage Growth Analysis (Table 18)

Grade Level	F-W # AEC	W-S # AEC	F-S # AEC
6th	35	27	43
7th	48	35	50
8th	46	35	59
9th	114	87	139
10th	127	100	156
11th	126	88	85
12th	95	66	49

END NOTES

[i] Ernst, J. 2009, Are Alternative Growth Targets Warranted for Colorado's AEC Students

[ii] Ernst J. 2009, Comparison of Annual Student Growth Percentiles among Alternative Education and Traditional Middle School Students in Arizona

[iii] Ernst & Turnbull 2010, Alternative Growth Goals for Alternative Education Students: Using NWEA's MAP Assessments

[iv] NWEA, 2015 NWEA Measures of Academic Progress Normative Data

[v] Ernst & Turnbull, 2010, Alternative Growth Goals for Alternative Education Students: Using NWEA's MAP Assessments