

ARE PROFICIENT STUDENTS GROWING? AN ANALYSIS OF 2009 IOWA GROWTH DATA

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Purpose—Iowa has used a No Child Left Behind (NCLB) growth model since 2007. 2009 was the first time that growth data for three years have been included in making Adequate Yearly Progress (AYP) decisions for schools and districts. The NCLB growth model project focuses only on students who are not proficient in a previous year, and remain non-proficient in a subsequent year. They are counted as meeting growth, and thus AYP, when they make significant progress toward becoming proficient. What remains is the lingering question of “What about the students who are already proficient?” As it is important to study the academic achievement gains of non-proficient students, to make sure they are on track to becoming proficient, it is equally important to study the academic achievement gains of students who are already proficient, to make sure they are improving in their own learning. Thus, this analysis is a study of the academic achievement improvement of students throughout the proficiency spectrum.

Methodology—The present study was conducted using AYP data for Iowa students who took the Iowa Tests of Basic Skills in grades three through eight, the grades that are approved by the United States Department of Education for Iowa’s growth model as part of its accountability plan. Data were studied for reading and mathematics. First, the data were matched by student ID from 2008 to 2009. This eliminated students who were not present to be tested during either 2008 or 2009. The final dataset contained students who had two years of data, and who had increased from one grade level to the next. Some students who had a two-year change in grade level were kept in the dataset, because their data were judged to be valid based on name, date of birth, district, and school.

A review of the matched dataset, aside from the students who skipped grades, reflected students who, from 2008 to 2009, moved from grade 3 to grade 4, grade 4 to grade 5, grade 5 to grade 6, grade 6 to grade 7, and grade 7 to grade 8. Generally, the matching procedure yielded a final dataset of approximately 163,000 students and 32,500 students per grade.

The data were sorted by grade and achievement level in order to tally the number of students who moved across achievement levels from one year to the next. Student achievement was classified into one of seven groups. Weak, Low Marginal, and High Marginal are levels of non-proficiency, whereas Moderate, Skilled, Accomplished, and Distinguished are levels of proficiency. What follows are specifics for each content area, comparing student achievement in 2008 with student achievement in 2009.

Table 1—Achievement Level Bands

Achievement Level	Achievement Level Name	Percentile Rank (PR) Equivalents
1	Weak	<9
2	Low Marginal	10 to 29*
3	High Marginal	30 to 40*
4	Moderate	41 to 75
5	Skilled	76 to 89
6	Accomplished	90 to 94
7	Distinguished	95 to 99

Source: Iowa Department of Education, AYP file.

*The range of these bands vary by around 2 percentile points, depending on the grade level and content area.

Mathematics Growth Analysis (from Mathematics Results Table)—

For students in grades 4-8 during 2009:

1. Of the students in the lowest non-proficient level, Weak (level 1), 63.9 percent improved, with 7.6 percent achieving proficient status.
2. Of the students in the second lowest non-proficient level, Low Marginal (level 2), 41.3 percent improved, with 23.7 percent achieving proficient status.
3. Of the students in the highest non-proficient level, High Marginal (level 3), 47.7 percent improved, achieving proficient status.
4. Of the students in the first proficient level, Moderate (level 4), 61.7 percent remained at that level, with 22.1 percent improving their achievement status. The status of 83.8 percent of the students stayed the same or improved. 16.2 percent of the students decreased in achievement, dropping below proficiency.
5. Of the students in the second proficient level, Skilled (level 5), 41.7 percent remained at that level, with 26 percent improving their achievement status. The status of 67.7 percent of the students stayed the same or improved. 32.3 percent of the students decreased in achievement, with 1.6 percent dropping below proficiency.
6. Of the students in the third proficient level, Accomplished (level 6), 23.9 percent remained at that level, with 29.9 percent improving their achievement status. The status of 53.8 percent of the students stayed the same or improved. 46.2 percent of the students decreased in achievement, with 0.3 percent dropping below proficiency.
7. Of the students in the highest proficient level, Distinguished (level 7), 62.8 percent remained at that level. These students cannot improve their proficient status since they are at the highest level possible. However, it might be said that they improved, since their continued achievement is on a test that is advanced one year in difficulty. 37.2 percent of the students decreased in achievement with 0.2 percent dropping below proficiency.
8. Overall 21.7 percent of the students were in the three non-proficient levels, and 78.2 percent of the students were in the four proficient levels.

Table 2—Mathematics Growth Analysis (Grades 3-8)

2008 Level Non-Proficient	Percent Level Improved for 2009	Percent Achieved Proficiency
Weak	63.9	7.6
Low Marginal	41.3	23.7
High Marginal	47.7	47.7
2008 Level Proficient	Percent Level Improved for 2009	Percent Same Level or Higher
Moderate	22.1	83.8
Skilled	26.0	67.7
Accomplished	29.9	53.8
Distinguished	NA	62.8

Reading Growth Analysis (From Reading Results Table)—

For students in grades 4-8 during 2009:

1. Of the students in the lowest non-proficient level, Weak (level 1), 68.1 percent improved, with 11.2 percent achieving proficient status.
2. Of the students in the second lowest non-proficient level, Low Marginal (level 2), 44.4 percent improved, with 25.9 percent achieving proficient status.
3. Of the students in the highest non-proficient level, High Marginal (level 3), 51 percent improved, achieving proficient status.
4. Of the students in the first proficient level, Moderate (level 4), 59.2 percent remained at that level, with 24.3 percent improving their achievement status. The status of 83.4 percent of the students stayed the same or improved. 16.6 percent of the students decreased in achievement, dropping below proficiency.
5. Of the students in the second proficient level, Skilled (level 5), 38.2 percent remained at that level, with 28.7 percent improving their achievement status. The status of 66.9 percent of the students stayed the same or improved. 33.1 percent of the students decreased in achievement, with 1.8 percent dropping below proficiency.
6. Of the students in the third proficient level, Accomplished (level 6), 22.7 percent remained at that level, with 30.7 percent improving their achievement status. The status of 53.4 percent of the students stayed the same or improved. 46.6 percent of the students decreased in achievement, with 0.6 percent dropping below proficiency.
7. Of the students in the highest proficient level, Distinguished (level 7), 53.5 percent remained at that level. These students cannot improve their proficient status since they are at the highest level possible. However, it might be said that they improved, since their continued achievement is on a test that is advanced one year in difficulty. 46.5 percent of the students decreased in achievement with 0.2 percent dropping below proficiency.
8. Overall 24.6 percent of the students were in the three non-proficient levels, and 75.4 percent of the students were in the four proficient levels.

Table 3—Reading Growth Analysis (Grades 3-8)

2008 Level Non-Proficient	Percent Level Improved for 2009	Percent Achieved Proficiency
Weak	68.1	11.2
Low Marginal	44.4	25.9
High Marginal	51.0	51.0
2008 Level Proficient	Percent Level Improved for 2009	Percent Same Level or Higher
Moderate	24.3	83.4
Skilled	28.7	66.9
Accomplished	30.7	53.4
Distinguished	NA	53.5

Additional Analyses—The following tables show the percent of students (by grade and combined across grades) that improved one or more achievement levels, remained at the same achievement level, or decreased one or more achievement levels. Generally, between 25 and 30 percent of students improved at least one achievement level, reflecting accelerated learning. Note, that a student maintaining one’s status at the same achievement level over time on a more difficult test has made at least a year’s growth in a year’s time.

Table 4—Mathematics Growth Results by Grade

2009 Grade	Percent Increased Level	Percent Same Level	Percent Decreased Level
4	36.5	44.4	19.1
5	25.4	49.1	25.5
6	17.8	48.5	33.8
7	27.4	51.2	21.4
8	22.6	52.8	24.6
Total	25.9	49.2	24.9

Table 5—Reading Growth Results by Grade

2009 Grade	Percent Increased Level	Percent Same Level	Percent Decreased Level
4	38.5	41.9	19.6
5	30.3	44.7	25.1
6	18.0	44.4	37.6
7	33.0	46.7	20.3
8	31.0	49.0	20.0
Total	30.2	45.4	24.5

The following tables show the average gains and losses by achievement level for all grades combined. For students in the non-proficient levels (1 through 3), achievement improved the most, with the net gain in the percentage of students experiencing accelerated achievement ranging from 16.5 percent to 63.9 percent in math, and 22.8 percent to 68.1 percent in reading. The improvement in level 4 was slightly better than the decreases in performance, while the decreases were greater than the improvements in the higher achievement categories (levels 5 and 6). Keep in mind that level 7 is the top of the scale, and there is nowhere to go but down. Level 6 is near the ceiling of the achievement continuum, and a small change in the raw score can have a larger effect on a student’s percentile ranking, dropping them down to the next achievement level (or lower).

Table 6—Mathematics Average Gain by Achievement Level

2008 Achievement Level	Improvement	Decrease	Net Change
	Percent	Percent	Percent
Weak (1)	63.9	0.0	63.9
Low Marginal (2)	41.3	12.5	28.8
High Marginal (3)	47.7	31.2	16.5
Moderate (4)	22.1	16.2	5.9
Skilled (5)	26.0	32.3	-6.3
Accomplished (6)	29.9	46.2	-16.3
Distinguished (7)	0.0	37.2	-37.2

Table 7—Reading Average Gain by Achievement Level

2008 Achievement Level	Improvement	Decrease	Net Change
	Percent	Percent	Percent
Weak (1)	68.1	0.0	68.1
Low Marginal (2)	44.4	13.5	30.9
High Marginal (3)	51.1	28.3	22.8
Moderate (4)	24.3	16.6	7.7
Skilled (5)	28.7	33.1	-4.4
Accomplished (6)	30.7	46.6	-15.8
Distinguished (7)	0.0	46.5	-46.5

Summary/Conclusion—Immediately following enactment of the No Child Left Behind Act of 2001, educators were lamenting the idea that NLCB would force teachers to focus their school improvement efforts on non-proficient students, which would consequently leave the proficient students behind. Based on the evidence submitted herein, such a consequence has not been realized. Data show that there are large proportions of students at all grade levels that are maintaining their achievement at the highest level. Furthermore, significant proportions of students at each achievement level are improving their achievement status, regardless of grade, and across content areas. Overall, the growth results confirmed the notion that the more room students have to grow, the more they grow. The students in the lower achievement levels grew the most, and the students in the higher achievement levels did not grow as much. Evidence provided supports the notion that teachers are implementing instructional practices that are enabling students at all achievement levels to improve their achievement status.

Further information on the Iowa Growth Model is available at the following URL:
http://www.iowa.gov/educate/index.php?option=com_docman&task=doc_download&gid=3817

APPENDIX A

Mathematics Results Table: Percent of Students at each Achievement Level

2009 Grade	2008 Achievement Level	1 <9	2 10 to 29(2)	3 30(2) to 40	4 41 to 75	5 76 to 89	6 90 to 94	7 95 to 99	Improving
4	Weak (1)	24.8	47.5	13.0	13.1	1.5	0.1	0.0	75.3
	Low Marginal (2)	9.3	37.4	19.4	30.4	2.9	0.4	0.1	53.3
	High Marginal (3)	2.5	20.0	17.8	51.3	6.9	1.0	0.4	59.8
	Moderate (4)	0.5	4.9	6.8	53.8	25.5	5.4	3.1	34.0
	Skilled (5)	0.1	0.6	0.8	21.4	40.2	18.2	18.7	36.9
	Accomplished (6)	0.0	0.2	0.4	7.6	30.2	20.7	40.9	40.9
	Distinguished (7)	0.0	0.0	0.1	2.7	13.5	17.0	66.6	66.6
	Total Grade 4	2.2	9.6	7.1	33.9	22.0	9.2	16.1	
	5	Weak (1)	36.6	46.2	9.2	7.4	0.5	0.0	0.1
Low Marginal (2)		11.9	45.4	18.7	22.4	1.1	0.2	0.1	42.7
High Marginal (3)		2.3	30.0	22.2	42.7	2.4	0.2	0.2	45.6
Moderate (4)		0.4	6.4	9.4	61.9	17.3	3.3	1.3	21.9
Skilled (5)		0.0	0.6	0.9	31.4	40.5	15.2	11.4	26.6
Accomplished (6)		0.0	0.1	0.1	9.7	33.9	25.0	31.1	31.1
Distinguished (7)		0.0	0.0	0.1	3.0	13.6	19.0	64.2	64.2
Total Grade 5		2.4	10.5	7.4	35.6	19.9	9.3	14.9	
6		Weak (1)	44.9	45.7	5.5	3.3	0.4	0.1	0.0
	Low Marginal (2)	18.6	54.4	13.5	12.5	0.7	0.0	0.1	26.9
	High Marginal (3)	5.5	39.3	22.4	30.9	1.7	0.2	0.0	32.7
	Moderate (4)	0.9	10.5	12.5	61.4	12.4	1.8	0.6	14.8
	Skilled (5)	0.0	0.9	1.4	41.1	37.7	12.0	6.8	18.8
	Accomplished (6)	0.0	0.2	0.2	16.1	38.3	22.9	22.3	22.3
	Distinguished (7)	0.1	0.0	0.0	3.8	17.6	22.8	55.7	55.7
	Total Grade 6	3.7	13.7	8.3	37.1	18.1	8.2	11.0	
	7	Weak (1)	38.3	48.0	6.8	6.4	0.3	0.0	0.2
Low Marginal (2)		12.7	45.9	17.8	22.6	0.9	0.1	0.0	41.4
High Marginal (3)		2.7	23.7	22.1	48.6	2.6	0.2	0.1	51.4
Moderate (4)		0.4	4.9	7.1	65.4	18.1	2.8	1.4	22.3
Skilled (5)		0.1	0.5	0.7	29.0	41.5	15.5	12.7	28.3
Accomplished (6)		0.0	0.1	0.3	10.5	32.3	21.6	35.3	35.3
Distinguished (7)		0.0	0.1	0.0	2.6	14.7	15.9	66.7	66.7
Total Grade 7		3.0	10.8	7.0	38.4	19.2	7.6	14.0	
8		Weak (1)	36.2	52.2	6.4	4.9	0.3	0.0	0.0
	Low Marginal (2)	10.8	49.1	18.3	20.9	0.8	0.0	0.0	40.1
	High Marginal (3)	2.4	30.2	22.1	43.5	1.6	0.1	0.0	45.3
	Moderate (4)	0.3	6.7	9.4	65.9	16.0	1.6	0.3	17.8
	Skilled (5)	0.0	0.3	0.6	31.0	48.5	14.0	5.5	19.6
	Accomplished (6)	0.0	0.0	0.2	9.2	39.4	28.8	22.4	22.4
	Distinguished (7)	0.0	0.1	0.0	1.6	15.0	22.2	61.1	61.1
	Total Grade 8	2.8	12.7	7.8	37.5	20.3	8.3	10.7	

Source: Iowa Department of Education, AYP file.

APPENDIX B

Reading Results Table: Percent of Students at each Achievement Level

2009 Grade	2008 Achievement Level	1 <9	2 10 to 29(2)	3 30(2) to 40	4 41 to 75	5 76 to 89	6 90 to 94	7 95 to 99	Improving
4	Weak (1)	18.9	41.3	17.5	20.6	1.3	0.1	0.2	81.1
	Low Marginal (2)	10.9	31.6	20.4	33.9	2.3	0.6	0.2	57.4
	High Marginal (3)	3.3	17.7	18.2	52.8	6.7	1.1	0.3	60.8
	Moderate (4)	0.6	4.1	7.3	56.4	21.6	6.2	3.9	31.6
	Skilled (5)	0.1	0.4	0.7	26.1	33.9	18.9	20.0	38.8
	Accomplished (6)	0.1	0.1	0.2	10.3	26.1	24.4	38.8	38.8
	Distinguished (7)	0.0	0.1	0.1	3.1	15.1	18.0	63.6	63.6
	Total Grade 4	2.6	8.7	7.7	37.1	19.4	10.0	14.6	
5	Weak (1)	29.2	44.1	13.6	12.8	0.3	0.0	0.0	70.8
	Low Marginal (2)	12.7	36.8	20.5	28.4	1.6	0.2	0.0	50.6
	High Marginal (3)	3.4	20.7	20.8	49.7	4.7	0.6	0.3	55.2
	Moderate (4)	0.5	5.0	8.3	58.6	21.8	3.8	2.1	27.7
	Skilled (5)	0.1	0.5	0.9	31.1	40.2	14.2	13.0	27.2
	Accomplished (6)	0.0	0.3	0.2	15.5	39.2	20.6	24.2	24.2
	Distinguished (7)	0.0	0.1	0.1	6.7	26.5	19.7	46.9	46.9
	Total Grade 5	2.8	9.2	7.9	38.9	22.6	8.0	10.6	
6	Weak (1)	40.7	48.2	5.9	4.9	0.2	0.0	0.0	59.3
	Low Marginal (2)	19.2	52.1	13.7	14.4	0.5	0.1	0.0	28.7
	High Marginal (3)	6.9	38.2	21.2	32.1	1.4	0.1	0.1	33.7
	Moderate (4)	1.1	13.2	14.2	59.1	10.4	1.4	0.5	12.4
	Skilled (5)	0.2	1.3	2.4	46.3	32.8	10.0	7.0	17.0
	Accomplished (6)	0.0	0.5	0.5	23.7	37.8	16.8	20.7	20.7
	Distinguished (7)	0.0	0.0	0.2	9.7	27.4	21.2	41.6	41.6
	Total Grade 6	4.6	16.3	9.8	40.4	16.3	5.8	6.9	
7	Weak (1)	39.3	45.9	9.0	5.6	0.1	0.0	0.1	60.7
	Low Marginal (2)	13.1	41.7	20.7	23.3	1.1	0.1	0.0	45.2
	High Marginal (3)	2.8	22.8	23.1	47.4	3.3	0.3	0.2	51.3
	Moderate (4)	0.7	5.9	8.2	58.8	21.4	3.3	1.8	26.4
	Skilled (5)	0.1	0.5	0.6	25.6	42.7	15.5	14.9	30.4
	Accomplished (6)	0.1	0.3	0.4	8.6	31.2	22.5	37.0	37.0
	Distinguished (7)	0.1	0.2	0.0	2.7	16.9	17.9	62.1	62.1
	Total Grade 7	4.5	13.6	9.4	36.7	19.2	6.6	10.0	
8	Weak (1)	32.5	50.2	8.5	8.6	0.3	0.0	0.0	67.5
	Low Marginal (2)	12.5	46.1	17.4	22.8	1.1	0.1	0.0	41.4
	High Marginal (3)	3.1	24.0	19.9	49.7	2.6	0.4	0.2	52.9
	Moderate (4)	0.4	5.6	7.5	62.7	19.4	3.4	1.0	23.7
	Skilled (5)	0.1	0.3	0.4	25.2	43.3	18.6	12.1	30.7
	Accomplished (6)	0.0	0.2	0.0	8.8	31.4	28.9	30.7	30.7
	Distinguished (7)	0.2	0.0	0.0	2.7	15.4	23.6	58.1	58.1
	Total Grade 8	3.9	14.0	8.1	38.6	18.5	8.1	8.8	

Source: Iowa Department of Education, AYP file.