

ACT Analysis for the Class of 2015

September 2015

Introduction

This report has been produced annually for the Board of Education since 2010. This year, some analyses have been added and a few have been simplified. The analyses in the report use scores from 1026 students from the graduating class of 2015. ACT's profile reports the scores of 1,045 students from New Trier. Of those 1,045 students reported in ACT's data, 27 never graduated from New Trier and 8 students are not included in ACT's report because they officially graduated in three years or five years. Hence, numbers in this report can vary slightly from ACT's official report. It is important to note that the analysis in this report adheres to ACT's methodology of using a student's *last* ACT score, not their *best* ACT score. Appendix I describes the methodology used in this report in detail.

Of those 1,026 students, 992 have official PLAN scores and those students are used for the growth analyses. Please note that the ACT has retired the PLAN test and is promoting a new test series called ACT Aspire. The class of 2016 will be the last class we can analyze PLAN to ACT growth for students. Replacement assessments are being considered for tracking student growth.

Key findings for the Class of 2015

Our overall achievement on the ACT continues to be the top in the state for open enrollment high schools. ***As importantly, the achievement of our students in our non-AP curriculum is at remarkably high levels.*** Two important pieces of data illustrate this fact. First, the 611 students who enrolled in level 3 English during their senior year, never having taken an AP English class, averaged 28.1 on the English ACT, with 25% of these students scoring in the top 10% of the nation. Second, the 305 students who enrolled in level 3 Pre-Calculus Senior year, averaged 27.8 on the Math portion of the ACT, with 51% of these students scoring in the top 9% in the nation. These data tell an important story about the strength of our non-AP curriculum and *they have been added to the school profile that we send to colleges.*

This year, the PLAN to ACT analysis was augmented with a comparison of our students' performance against the college-readiness benchmarks set for the PLAN and the ACT. The key finding with this additional analysis is the large number of students who reached the ACT College Readiness Benchmark, but did not do so on the PLAN test. As an example, in math, college readiness grew from 79% of the class on the PLAN to 88% of the class on the ACT. Of the 21% of students who did not reach the math college readiness benchmark on the PLAN, almost half of those reached the benchmark by the time they took the ACT. ***This growth supports our belief that students in all levels of classes experience a rigorous curriculum, have excellent teachers, and are dedicated to learning.*** The results were similar on the science and reading tests.

What follows are specific analyses on the depth and quality of our students' achievement, ACT test taking patterns, PLAN to ACT growth, and ACT scores broken down by gender.

I. Depth and Quality of Student Achievement

Overall

The average composite score for our students was 27.7.

- 16% of New Trier students scored in the top 1% of the nation.
- 38% of New Trier students scored in the top 5% of the nation.
- 55% of New Trier students scored in the top 10% of the nation.
- 83% of New Trier students scored in the top 25% of the nation.

English

- The average score for New Trier students was 28.1
- 11% of New Trier students scored in the top 1% of the nation.
- 51% of New Trier students scored in the top 10% of the nation.

Scores by level of capstone course:

Level	# of students	Average Score	% in top 10% nationally (29)	% above national average (20.4)	% who meet ACT College Readiness Benchmark (18)
AP	167	32.8	90.5%	100%	100%
4	90	31.3	82.2%	98.9%	98.9%
3	611	28.1	24.5%	95.9%	99.0%
2	156	21.5	5.2%	61.3%	81.3%

Math

- The average score for New Trier students was 27.5.
- 12% of New Trier students scored in the top 1% of the nation.
- 52% of New Trier students scored in the top 9% of the nation.

Scores by level of capstone course:

Level	# of students	Average Score	% in top 9% nationally (28)	% above national average (20.8)	% who meet ACT College Readiness Benchmark (22)
AP	366	31.6	93.2%	100%	100%
Pre-Calc 3	305	27.8	51.5%	99.7%	99.7%
Pre-Calc 2	249	24.1	11.6%	84.3%	79.5%
Other	105	21.0	13.3%	46.7%	44.8%

ACT College Readiness Benchmarks

From the ACT website:

A Benchmark score is the minimum score needed on an ACT subject-area test to indicate a 50% chance of obtaining a B or higher or about a 75% chance of obtaining a C or higher in the corresponding credit-bearing college courses.

ACT derived these benchmarks from empirical data of student ACT scores and grades in the initial college courses in these areas. The reading scores were compared to college grades in Social Science classes and the Science scores were compared to college grades in Biology classes.

Test	ACT Benchmark Score	Percent of all students nation-wide who meet this benchmark	Percent of New Trier Students who meet this benchmark
English	18	64%	97%
Math	22	44%	88%
Reading	22	44%	86%
Science	23	36%	83%
All 4	--	26%	75%

The data show an exceptional level of college readiness as compared to the nation. Examination of the students who do not meet the benchmarks is underway, but not all benchmarks are of equal concern. As an example, many students will not take biology in college, but they will almost all take a social science class leading to more concern about the Reading benchmark than the Science benchmark..

The results of this analysis are very positive; however the benchmarks have a number of shortcomings. First, this type of analysis does not look at the underlying reasons for why students who reach the benchmark yet do **not** perform well in these college classes or why students who do **not** reach the benchmark and do perform well in these college classes.

Second, many aspects of college academic readiness cannot be measured by a multiple choice test. Simple examples that teachers integrate into their classes are writing assignments in English and social studies and assessing thought processes and problem solving skills in math and science.

Finally, we also know that college success depends on significant social-emotional factors not captured by tests such as time management skills, persistence, resilience, and relationship skills needed to navigate dormitory and college life. The administration will continue to supplement this analysis through student surveys and data from the National Student Clearinghouse. Future reports to the board will include those analyses.

II. Student ACT Test Taking Patterns

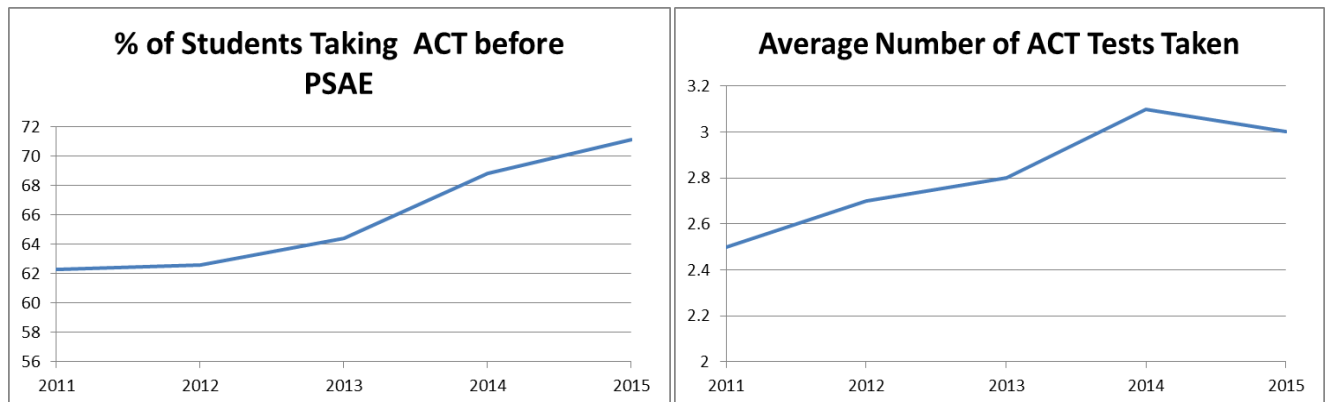
The next chart shows the number of times our students took the ACT along with the average of their first, last, and best ACT score. As a reminder, ACT does all of their analysis using the last score. The first and best scores are shown to give an indication of average growth.

# of ACT tests taken	# of students	% of students	Average First Score	Average Last Score	Average Best Score	% of students who achieved new best score on last test
1	96	9.4%	24.8	24.8	24.8	n/a
2	286	27.9%	27.7	28.3	28.9	52%
3	317	30.9%	26.6	28.1	28.8	46%
4	202	19.7%	25.6	27.7	28.2	49%
5	85	8.3%	24.6	26.9	27.4	42%
6	27	2.6%	25.3	28.1	28.7	40%
7 or more	13	1.3%	25.9	28.2	28.8	31%
TOTAL 2015 (2014)	1026 (1033)	100.0%	26.3 (26.2)	27.7 (27.5)	28.2 (28.2)	43% (41%)

Date of First ACT – Class of 2015

Date	# of Students	Avg First-Time Score	Comment
June 2013 or earlier	12	23.3	Before the end of Sophomore Year
September 2013	65	29.6	Start of Junior Year
October 2013	94	28.8	After 1 st Quarter Junior Year
December 2013	233	26.8	Near the end of first Semester Junior Year
Feb/March/April 2014	319	26.2	During 2 nd Semester Junior Year
April 2014 – PSAE	289	24.8	State Testing Date
After PSAE	14	25.5	Transfer students and other special cases
Total Class of 2015	1026	26.3	

A longitudinal comparison of some of these data helps to identify an area for investigation. First, the average number of ACT tests taken by New Trier students decreased slightly to 3.0 from 3.1 last year. Second, in the class of 2015 more students took an ACT prior to the PSAE in April (70.5%) than in the previous three years (62.6%, 64.4%, 68.8%).



III. PLAN to ACT Growth

This year the analysis is presented in two parts: growth of Composite Score from PLAN to ACT and growth in the college readiness benchmark by subject from PLAN to ACT.

Growth in Composite Score

Again this year, a large percentage of our students exceeded ACT's projected high composite score and few ended below the predicted composite low score. ACT uses historical data to set a mid-50% range for ACT scores based on a student's PLAN score. The higher the PLAN score, the higher the predicted ACT range. **Remarkably, at every PLAN score, our students exceeded, by a large margin, the expected percentage of students who achieved above the predicted ACT range.** Overall, 45% of our students exceed the mid-50% range. The growth results for all students are exemplary and speak to dedicated students, excellent teaching, and a rigorous curriculum.

Plan Score Range (national percentile)	# of Students	% below projected ACT mid-range	% within projected ACT mid-range	% exceeding projected ACT mid-range
1-14 (lowest 25%)	12 (1%)	25%	50%	25%
15-18 (mid-50%)	159 (16%)	4%	46%	50%
19-26 (top 25%)	701 (71%)	2%	52%	46%
27-32 (top 1%)	120 (12%)	4%	58%	38%
TOTAL	992	3%	52%	45%

Growth in College Readiness by Subject

ACT also provides benchmark scores for the PLAN test that indicate a student is on track to achieve a college ready score when the student takes the ACT. As shown in the chart below, in each of the four subject areas, a greater percentage of our students meet the college readiness benchmark on the ACT as compared to the PLAN. **These data specifically indicate significant growth for students in the lowest quartile of the class.** For example, in mathematics, while 21% did not meet the benchmark on the PLAN, only 12% did not meet the benchmark on the ACT. Hence, of the students who did not meet the benchmark on the PLAN test, 42% reached the benchmark by the time they took the ACT. Students showed similar growth in both Reading and Science.

Subject	% Meeting PLAN College Readiness Benchmark	% Meeting ACT College Readiness Benchmark	Increase in Students Meeting College Readiness Benchmark*
English	96%	97%	1% (≈ 10 students)
Math	79%	88%	9% (≈ 90 students)
Reading	79%	86%	7% (≈ 70 students)
Science	76%	83%	7% (≈ 70 students)

*Note this reflects a net number of students. A few students make the benchmark on the PLAN and miss on the ACT, but as shown in the first table above, very few students miss the expected growth target by ACT.

IV. Gender Differences

ACT Composite Score

Gender	# students	Composite	English	Math	Reading	Science
F	487	27.5	28.6	26.8	27.8	26.2
M	539	27.9	27.7	28.1	27.8	27.5
Total	1026	27.7	28.1	27.5	27.8	26.8

- This analysis includes students who were not at New Trier for four years.
- The difference in the average ACT scores by gender is statistically significant for English, Math, and Science, but not Reading or Composite.

Number of ACT Tests Taken

Gender	# students	Avg # of ACTs taken
F	487	3.2
M	539	2.9

- The difference in the average number of ACT tests is statistically significant.

ACT Scores by Capstone Math Class

Gender	Pre-Calculus, 2 level		Pre-Calculus, 3 level		AP Mathematics	
	# of students	Avg Math ACT Score	# of students	Avg Math ACT Score	# of students	Avg Math ACT Score
F	144	23.5	133	27.3	169	31.0
M	105	24.8	172	28.2	197	32.2

- The difference in average ACT scores is statistically significant in each category.

ACT Scores by Capstone English Class

Gender	English 4, 2 level		English 4, 3 level		AP English (Jr year or Sr year)	
	# of students	Avg English ACT Score	# of students	Avg English ACT Score	# of students	Avg English ACT Score
F	55	21.4	276	27.9	98	33.0
M	101	21.6	335	28.3	69	32.6

- The difference in average ACT scores is not statistically significant in any single category. It is worth noting that while the differences in scores in each category are not statistical significant, the school does have a statistically significant difference overall. The reason it appears in the total score is the uneven gender distribution of students in levels. This type of result is often referred to as Simpson's Paradox.

V. Conclusions

This report gives the district an opportunity to dig deeper into our test score data than simply reporting overall averages. That deeper analysis confirms the high level of achievement of New Trier students and the significant growth they make in their four years at New Trier. Beliefs in the rigor of our curriculum, the quality of our instruction, and the dedication of our students are affirmed by the data in this report. The results truly represent a team effort by each and every student, family, and teacher.

In addition to validating those positive beliefs, this analysis informs New Trier of opportunities for further growth and raises some questions for the school to examine. While New Trier has great test scores, school staff might ask if the increase in that number of ACT tests taken and the increase in the number of students taking an early ACT over the past five years is increasing stress and anxiety in students? Are male and female students being provided equitable opportunities for learning in each discipline? While New Trier has one of the highest public school percentages of students reaching the College Readiness Benchmarks, how can the curriculum and instruction be improved for those students who are not?

Finally, this report sets a priority for the school - ensure our students, families, wider community, and colleges know about the depth and breadth of achievement of our students. The administration will work toward this goal by integrating these data into the Profile of the Class of 2015, presenting the data and discussing it with Parent Association groups, and working with Post-High School Counseling to make sure college admissions offices have the key pieces of data in the report that show the rigor of our curriculum and the college readiness of our students in all academic levels.

Appendix I - Background and Methodology

The Tests

The ACT test is the standardized college entrance test taken most frequently by New Trier students. In addition, through the 2013-14 school year, the state of Illinois required all juniors to take the ACT as part of state testing in order to determine if a school is making *Adequate Yearly Progress* (AYP) according to the regulations set forth in *No Child Left Behind* (NCLB) legislation. ACT scores range from 1-36 except for writing which ranges from 1-12. The validity of the ACT writing test in predicting a student's ability to tackle college level writing assignments is questioned by many groups, in particular the National Council of Teachers of English (NCTE). The writing scores are not part of this analysis.

From the ACT website:

The ACT

The ACT[®] test assesses high school students' general educational development and their ability to complete college-level work.

- *The multiple-choice tests cover four skill areas: English, mathematics, reading, and science.*
- *The Writing Test, which is optional, measures skill in planning and writing a short essay.*

The PLAN

As a "pre-ACT" test, PLAN is a powerful predictor of success on the ACT. At the same time, many schools recognize the importance of PLAN testing for all students, as it focuses attention on both career preparation and improving academic achievement.

Methodology

- These analyses are mainly based on a student's last ACT score. While it is tempting to use a student's best score, doing that would introduce systemic error into the analyses. ACT acknowledges that a given test has error in reflecting a student's "true" ACT score, sometimes higher and sometimes lower. By using the best score, we would be over-representing our student's overall achievement on these tests. ACT uses the same methodology to compile its official reports.
- While ACT uses the last score attained by a student for statistical analysis, colleges use the best score attained by a student. Many schools also use a composite "super score" in which they use the best sub-score in each of the four areas and use those scores to calculate a new composite "super score".
- When comparing test scores of two groups, it is quite rare for the two averages to be the same. Yet, the difference of the averages between the two groups may not be significant. In fact, the difference in the averages may just be due to random chance of a few kids having a very good day. If we were to repeat the test next year, the group with the lower average might outperform the group with the higher average.
- A standard t-test was used to evaluate whether the averages of two groups were significantly different. Using this type of test, two averages are statistically different if it is at least 95% certain that the difference in the averages is not due to random chance.