

MEMORANDUM

DA: June 4, 2013

TO: Indiana Department of Education and State Board of Education

FR: An Advanced Placement Statistics Class at Ben Davis High School

RE: **Indiana's A-F High School Accountability Model**

The A-F accountability model is a very complex grading structure that is used to score the public high schools in the state of Indiana, but something so complex inevitably has flaws. The school receives a grade based off the performance of its students in four categories: English 10 and Algebra 1 End of Course Assessments (ECA), graduation rate, and college and career readiness. Repeated poor grades will result in intervention from the State Board of Education. As a class we examined the current model and proposed changes to account for some of the numerous flaws. Our recommendations concern the following topics:

- Effects of Poverty on School Grades
- College and Career Readiness
- Goal-Setting and Feedback to Schools
- Teacher Observation
- Student Knowledge of the School Grade

Note: All scatterplots and bar graphs seen below were created using information from the Indiana Department of Education website¹ to give a visual representation of the problems we are investigating.

Thank you for your consideration.

Sincerely,

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Part 1: Effects of Poverty on School Grades

Current Grading Criteria: None

Recommended Grading Criteria: The percentage of high school students receiving free and reduced meals needs to be added as both a fair and integral part of the equation for grading schools. There is a strong, negative association between students' English 10 and Algebra 1 ECA scores and the percentage of students on free and reduced meals.

Rationale: Due to the lack of acknowledgement for poverty stricken high schools, there is a trend of lower grades for those schools in the current grading system. The lower socioeconomic status of students in these schools is a contributor to the respective low grade they are receiving. As of now, the percentage of students receiving free/reduced meals is the best indicator to measure this problem. See Figure 1 below.

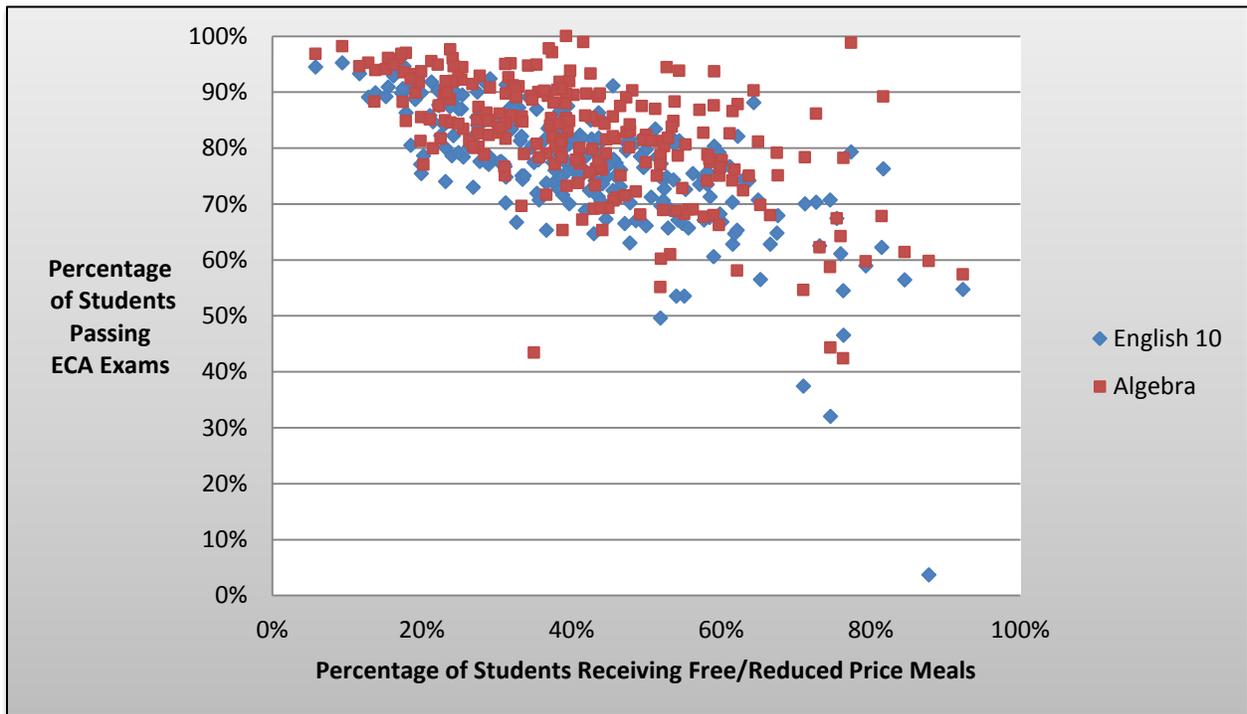


Figure 1: Scatterplot displaying the association between [percentage of students receiving free/reduced price meals](#) and [percentage of students passing ECA exams](#)

Please note: r is the correlation. It measures the strength and direction of the linear relationship between the two variables. The values range from -1 to 1, with 0 representing the weakest relationship and ± 1 representing the strongest. $r = -0.7$ for the English 10 ECA scores and $r = -0.59$ for Algebra 1 ECA scores

A problem we investigated with the current A-F model is that there is a negative association trending between a school grade and that school's percentage of students receiving free/reduced meals. See Figures 2 and 3 below.

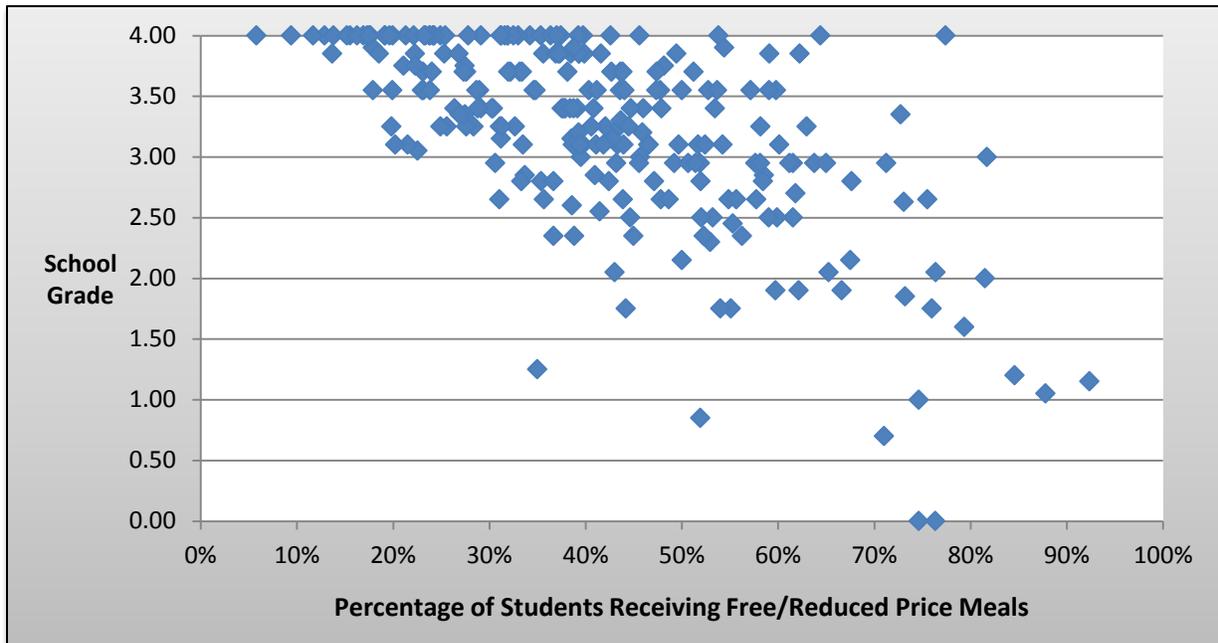


Figure 2: Scatterplot displaying the association between percentage of students receiving free or reduced meals and school grade

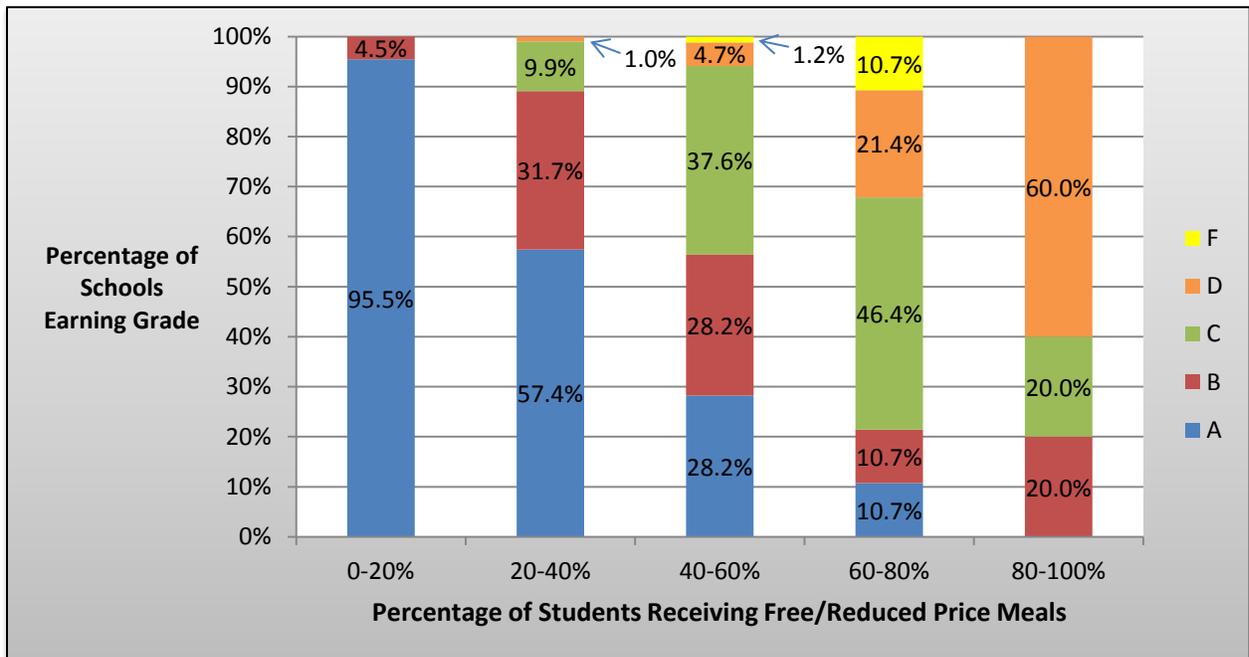


Figure 3: Segmented bar graph displaying the association between percentage of students receiving free/reduced price meals and school letter grade

Part 2: College and Career Readiness

Current Grading Criteria: 10% of a school's grade; goal is for 25% of students to be career- or college-ready

Recommended Grading Criteria:

- Expand the Career and College Readiness (CCR) component to 30% of the school grade and lower the weight of the two ECA sections to 20% each.
- One-quarter of the 30% component (or 7.5% of the overall grade) should be based upon the percentage of a school's students participating in Advanced Placement (AP), International Baccalaureate (IB), Dual-Credit, or Industry certification programs.
- Measure growth in career or college preparedness from the beginning to the end of high school.

Rationale:

Reasons to raise the weighting of this component to 30%:

- According to Rice University's Center for College Readiness, participation in an AP program correlates with a measurably better performance in college.
*"There is strong evidence that participation in AP strongly correlate with student achievement, college readiness, and college completion. The peer-reviewed research connecting AP participation to positive college outcomes has been conducted by non-profits, institutions of higher education, and the federal government. These organizations include Educational Testing Service, The College Board, the University of Texas and the U.S. Department of Education."*²
- Participation in the IB Programme is also an indicator of greater college success.
*"In addition, regression analyses controlling for socio-economic status, high school GPA, and SAT/ACT scores, demonstrated a positive relationship between indicators of high school IB participation and performance and college performance. Performance in the Diploma Programme was the best predictor of college performance, accounting for around 25% of the variance (depending on the specific model). Among subject group exams, scores on the experimental sciences IB exams were the best predictors of college GPA, explaining around 17% of the variance."*³
- Participation in AP, IB, and Dual-Credit programs helps with college admissions. These classes are recognized as more rigorous high school courses by college admissions counselors. You are more likely to get into a good college if you take classes that are more indicative of the college class setting. A transcript with many such classes carries more weight than one without them.
- If a student participates in an industry preparation program, this also accelerates their professional career, and helps them to maintain a steady future after graduation.
- Passing AP or IB tests and Dual-Credit courses can help to lower college costs. The costs of attending college have been increasing every single year. As a result, many people have to drop out of college simply because they cannot pay for the classes. The AP, IB, and Dual-Credit

program helps to alleviate these harms by providing high school students with the opportunity to test out of college classes that they may not be able to afford.

- The vast majority of individuals entering high school plan on attending college⁴. More than 90% of middle schoolers say that they plan on going to college. Therefore, when looking to the kids who will be entering high school, their main goal is to graduate and be ready for college.
- 66.2% of high school graduates went on to college in 2012⁵. When a majority of graduates are going on to college, it should be given a greater sense of importance in the high school's grade.
- AP test scores can be improved by schools fairly quickly⁶. While this is not necessarily the program we are putting forward, what the National Math and Science Initiative shows is that schools can **significantly** improve the percentage of students that pass AP tests in a very short amount of time. As a result, increasing the weight and importance of the CCR section would work to incentivize schools to place a higher emphasis on these programs. This higher emphasis could easily result in significant score improvement.

Reason to decrease the weighting of the Algebra 1 and English 10 ECA proficiencies to 20% each:

- There is one very large reason that the weight of both ECAs should be decreased. In Indiana, passing the English 10 and Algebra 1 ECAs is a **requirement** for graduation. Under the current system, we are placing such a gigantic emphasis on the aspects of high school that lead to graduation. By looking at both of the ECA scores and the graduation rate, we are examining this one aspect of the high school for **90%** of the total school grade. (See Figure 4 below, which demonstrates the strong, positive correlation between graduation rate and ECA passing rate.) This is a pretty large flaw because it allows the Indiana Department of Education to overlook aspects of high school that are highly important, and instead focus almost entirely on graduating. While, graduating high school is very important, the high school system is not designed to be a 90% emphasis on pushing everyone through graduation. An integral part of a successful high school is looking to how well it can prepare its students for life outside of the school, and that is what the CCR section works to measure.

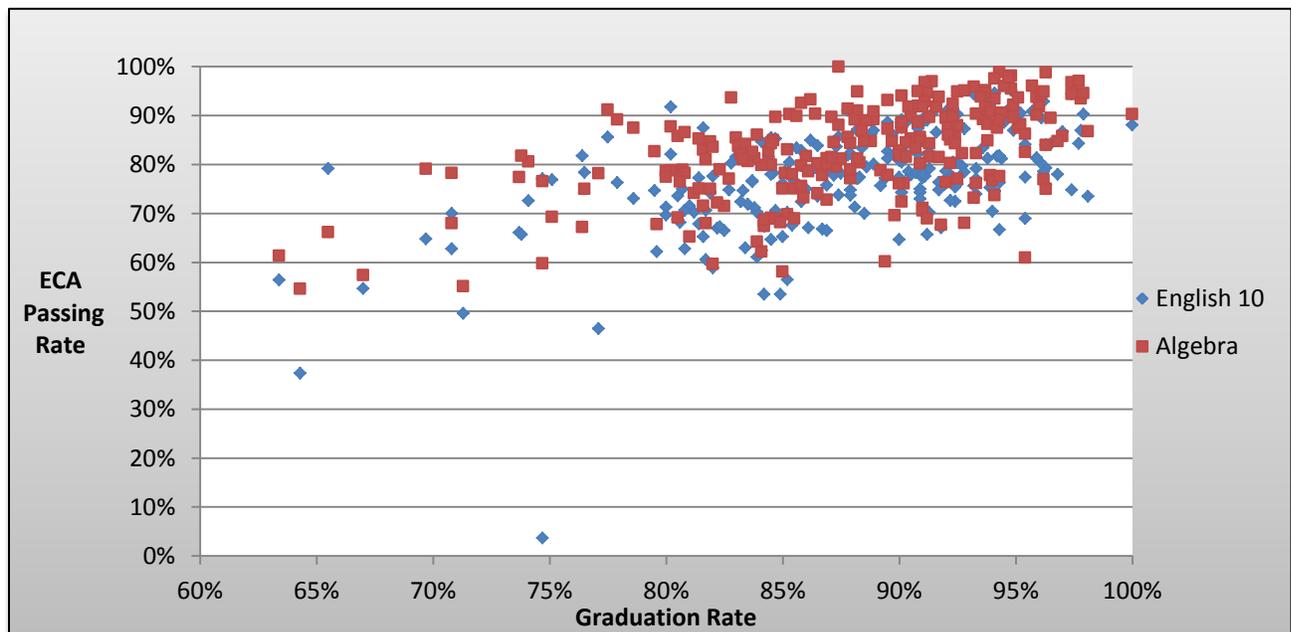


Figure 4: Scatterplot displaying the association between [graduation rate](#) and [ECA passing rate](#)

How we suggest grading this recommended College/Career Readiness component:

- 25% of the Career and College Readiness section grade should be based solely upon the proportion of students within the AP, IB, Dual-Credit, or industry certification programs. The reason for this is to provide schools with an incentive to expand the amount of kids in those programs. Research has shown that, regardless of performance in the course, all of these types of accelerated learning classes lead to students having a higher level of college success. This section should not be based completely upon the test scores alone, because the test scores are not the only important part of these courses. Being in these classes in the first place is what is most important.
- Only 22 high schools in Indiana offer the IB program, and larger schools are more likely to offer a variety of AP courses. Career centers are available to any school in its “area”, but students at the school that hosts the program are more likely to take advantage of it than students who have to drive more than half an hour to get to it. Large schools are able to offer more opportunities to get students college- and career-ready. Giving a school credit for the amount students who simply take part in what they are able offer makes the grading system more fair for small schools, and provides a larger incentive for schools to adopt more programs.

We also recommend that there should be two ways to meet the other 75% of this total grade.

- **Method 1 (the status quo):** Maintain the test performance system that we currently use. Simply roll over the way that we currently measure the grade in this category, which is having a certain portion of the students pass the AP, IB, or industry tests, or having students get at least 3 college credits.
- **Method 2 (measures growth):** A large part of the restructuring that has gone on within the education system over the past 5-10 years is the shift from performance to improvement. Therefore, instead of strictly measuring test performance, we should also have a way to measure CCR improvement. The way to go about this would be by having some indicator of college or career readiness freshman year. After measuring the portion of students who are deemed CCR, the school should measure this level again their senior year. This eliminates the performance emphasis, and looks more towards the growth model that the Indiana DOE has seemed to like. The standards that could indicate CCR to the state are not something that we have a recommendation for, but the state could probably formulate a simple way to measure that during freshman year.
- ECA performance and graduation rates have bonuses written into how they are graded, which encourages growth in both areas. College and career readiness does not have any bonuses offered, which shows the state is not encouraging growth. Schools should be rewarded for increasing the percentage of students ready for a future after high school. If a school meets both Method 1 and Method 2, it should be awarded a bonus.

Part 3: Goal-Setting and Feedback to Schools

Current Grading Criteria: None

Recommended Grading Criteria:

- The Department of Education defines a goal for each school every year.
- Schools take action to achieve that goal.
- The Department of Education sends goal-related information on their efforts back to schools along with the letter grade.

How can we change a school for the better if they are not given consistent information related to their efforts? We would like to see the Department of Education give schools timely feedback when they receive their letter grade for the year. Formative assessment (like establishing checkpoints) is a teaching tool that works by helping students monitor their own progress. We would like to see the Department of Education establish this technique between itself and schools. This expectation can only be met if communication is made with the schools throughout the year. A formative assessment can only be effective if negatives and positives are presented about each school, including helpful ways to change the procedures that are not effective. Timely and useful feedback is key to a successful school.

Part 4: Teacher Observation

Current Grading Criteria: None

Recommended Grading Criteria: Bring in outside observers into each of the schools to evaluate teacher performance and school learning procedures in order to gather information for a formative assessment.

To provide high-quality feedback to improve a schools' practice, teachers need to be "observed by the right people, with the right skills, and a sufficient number of times to produce trustworthy results."⁶ We would like to see the Department of Education bring in outside observers to evaluate not only the schools but the teachers so information can be gathered for the formative assessment at the end of each year. The reason we want to bring in outside observers is we do not want observer judgment from other teachers as stressed in the Measures of Effective Teaching (MET) Project. The MET Project also stressed that "observers must be well trained and assessed for accuracy before they score teacher lessons." In other words, we would like all schools in the state to receive a formative assessment on the progress of their school by using outside observers to record teacher and student performance during the school year.

Part 5: Student Knowledge of the School Grade

Recommendation for School-Level Administrators: We believe student involvement plays a factor in the school's overall grade. We surveyed students at Ben Davis High School in order to catch a glimpse of the number of students who were aware of the school's grade and whether that knowledge motivated them to work harder. Before the survey took place, we predicted that the students who knew our school's grade would have more motivation to help improve it. It turns out we were wrong.

Given the data collected in Figure 6, it is safe to assume that the majority of students at Ben Davis do not know that their school's grade is presently a "C". Those students were also the ones who felt motivated to improve their academic performance in order to help improve the grade. We recommend that students be informed of their school's grade. This may be a driving force for some students, and may ultimately lead to an "A" for schools with poor grades. If such an achievement is reached, schools should be willing to reward students that have shown adequate growth. If students and staff work together to improve a school's grade, it will show that they care not only about their grades, but about the school's, too. When students and staff work together, they can make a change.

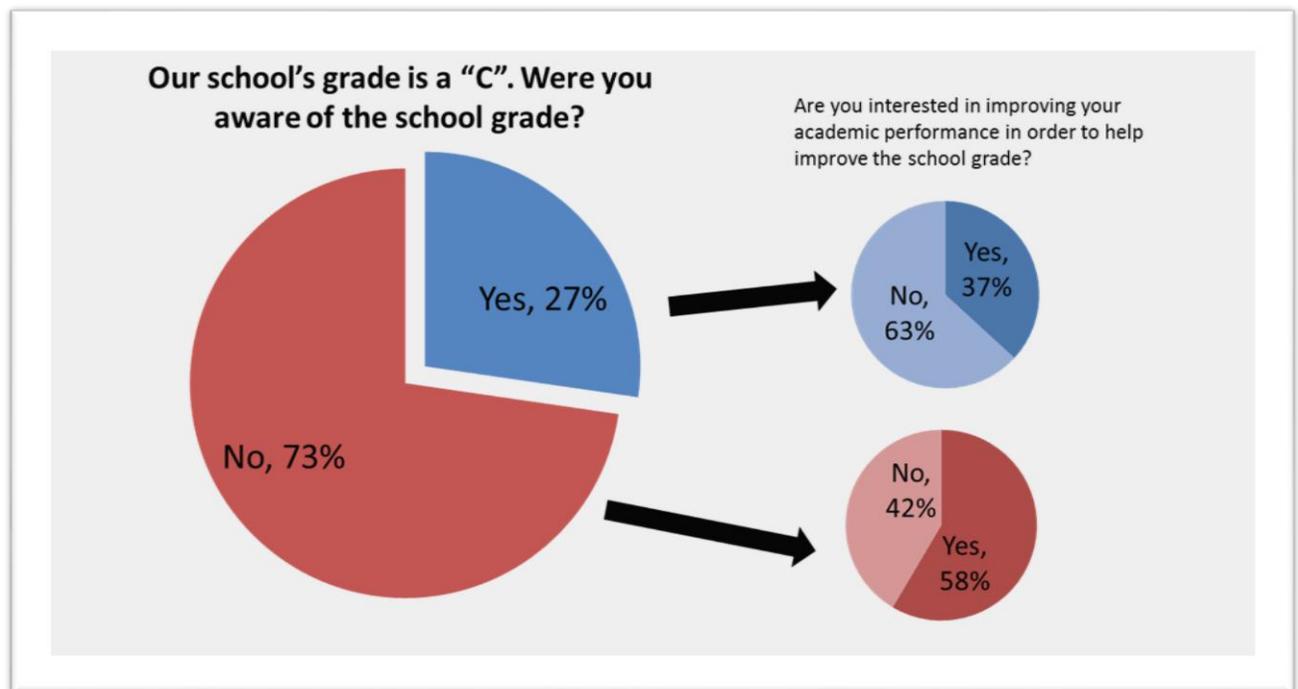


Figure 6: Responses by over 300 Ben Davis High School students in Math, Science, English, Art, World Language, and Military Science classes. Surveys were given to teachers who administered them to their students. Responses were collected anonymously.

Notes

- ¹"A-F Accountability." *IDOE Home*. N.p., n.d. Web. 24 May 2013.
<<http://www.doe.in.gov/improvement/accountability/f-accountability>>.
- ²"AP and College Readiness." *Advanced Placement (AP) and College Readiness : Rice University Center for College Readiness*. N.p., n.d. Web. 24 May 2013.
<http://collegeready.rice.edu/AP_and_CR_Main.aspx>.
- ³"Academic Performance of IB Students Entering the University of California System from 2000-2002." *IB Global Policy & Research Department*. August 2010.
<http://www.ibo.org/research/programmevalidation/documents/CADDataReportReportSummary_tempweb.pdf>
- ⁴"Most Middle Schoolers Plan to Attend College but Don't Know How to Get There, Report Says" *Chronicle of Higher Education*. Lipka, Sara. 23 May 2007
<<http://www.calstate.edu/pa/clips2007/may/23may/middle.shtml>>
- ⁵"College Enrollment and Work Activity of 2012 High School Graduates." *U.S. Bureau of Labor Statistics*. U.S. Bureau of Labor Statistics, 17 Apr. 2013. Web. 31 May 2013.
<<http://www.bls.gov/news.release/hsgsec.nr0.htm>>.
- ⁶"Research & Results | Transform Schools | National Math + Science Initiative." *Research & Results | Transform Schools | National Math + Science Initiative*. N.p., n.d. Web. 24 May 2013.
<<http://www.nms.org/programs/ResearchResults.aspx>>.
- ⁷"Ensuring Fair and Reliable: Culminating Findings from the MET Project's Three-Year Study." *MET Project*. Bill and Melinda Gates Foundation, n.d. Web. 31 May 2013.
<http://www.metproject.org/downloads/MET_Ensuring_Fair_and_Reliable_Measures_Practitioner_Brief.pdf>.