College & Career Readiness: An Initial Validation Argument

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National Conference on Student Assessment,

Orlando, 2011

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Demand for More Rigor in Standards

- States have been criticized by reported disparities in outcomes on state tests and other educational indicators like NAEP, SAT, ACT, college remediation rates, college graduation rates (Lee, 2007, Linn, 2003, Linn, 2005)
- Great disparity when comparing the percent of students proficient on 8th grade NAEP with state proficiency (…comparing % college ready on ACT/SAT with % proficiency in state high school tests)
- External outcomes seem to contradict findings reported from most state standards:
  - College Remediation Rates (over 36 % of undergraduates report taking remedial courses) and College Placement Test results (far more students do not meet college placement cut scores and may either get a waiver or not enroll).
  - International comparisons show college going students in US losing ground in relation to similar students in other nations (OECD, PISA, TIMSS)
  - Anecdotal evidence from the business community, higher ed faculty and policymakers supports these findings.

Facets of College Readiness

Key Cognitive Strategies –analysis, reasoning, interpretation

Key Content –math, writing, reading, science, research

Academic Behaviors-self monitoring, study skills

Contextual Skills & Awareness-knowledge, norms, expectations, of college; ability to work and learning collaboratively…

David T. Conley (2007)

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College and Career Readiness (CCR)

Preparedness

- NAEP Focus on College Preparedness, a subset of Readiness.
  - Limited to academic qualifications; Excludes behavioral and contextual information
- Preparedness means qualified for entry into postsecondary education (college or workplace training).
- NAEP research (occupations requiring > 3 mths training but less than BA.

Ability to Benefit

- College applicants who have not earned a high school diploma or GED must pass an approved test to qualify for federal aid as Ability-to-Benefit (ATB) students access to Federal Title IV Financial Aid programs.
- Students must demonstrate they possess sufficient (ATB) from post-secondary education via their performance in an approved test to justify financial aid.

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Gathering evidence of CCR

- Task is to make inferences about high school students readiness for postsecondary education (college, workplace training).
- Difficulty is that we often are making these inferences 2, 3, or 4 yrs in advance.
  - College and Career Readiness Consortiums are asked to make even earlier projections (linkages).
- Predicting future academic behaviors
- Backmap or sequence postsecondary proficiencies (KSAs) to establish a trajectory of skill acquisition.
  - Individual differences, contextual differences.

Relevance of the Standards for Educational and Psychological Testing (1999) to CCR

- Explicit statement of the purpose - graduate high school able to succeed in entry-level, credit-bearing academic college courses and in workforce training programs.
- Delineate the aspects of the construct that are to be represented – CCSS and assessment frameworks (TBD)
- Develop a scientifically sound validity argument to support the intended interpretations of CCR.

Relevance of the Standards for Educational and Psychological Testing (1999) to CCR

- A validity argument depends on more than one proposition. Strong evidence in support of one does not diminish the need for evidence to support other propositions.
- A few lines of very solid evidence regarding a proposition are better than numerous lines of evidence of questionable quality.
- Interpretation of results should be based on multiple sources of convergent and collateral data (and understanding of normative, empirical and theoretical foundations).

Establishing Evidence for CCR

Validity argument:

- Content – standards are essential to allow access to college material.
- Construct – standards capture the constructs of mathematics or ELA (depth, breadth…) as defined for postsecondary education. Conceptual framework of constructs is invariance across standards and postsecondary work.
- Criterion-related – students proficient on standards are able to access and succeed in entry level postsecondary work.

Common Core State Standards Evidence – Validity Argument

- Content – Alignment to H.Ed. Competencies, International Benchmarks; Surveys of Importance, Criticality of Skills for entering expectations; Literature Reviews
- Construct – Relationship to Other Measures (ACT, SAT, Accuplacer, H.Ed. Placement tests); Course Syllabus (*Brown, 2011*):
  - Applicability (Prereq, Reviewed, Introduced, Subsequent)
  - Importance (Most, More, Less, Least)
  - Calibrate Standards Statements (Rasch) to common scale comparisons across courses can be made in terms of degree of alignment.

CCR State Assessments – Validity Argument for PARCC & Smarter-Balanced

- Content – Aligned to CCSS and H.Ed. Competencies in entry college and workplace training courses.
  - Judgmental studies (standard setting), Alignment studies.
- Construct – Relationship to Other Measures (ACT, SAT, Accuplacer, H.Ed. Placement tests, International assessments).
  - Relationship among benchmarks on CCSA and PISA, TIMSS, SAT, ACT, Probability for College Admissions, Placement cut scores (data book); convergent & divergent validation evidence.
- Criterion-Related –Relationship to College Outcomes (Course grades, FGPA, Success in Training Program, Training Course grades, Persistence).
  - Classification Accuracy – Placement in Entry level credit bearing courses, Success in AP/Dual Enrollment courses.

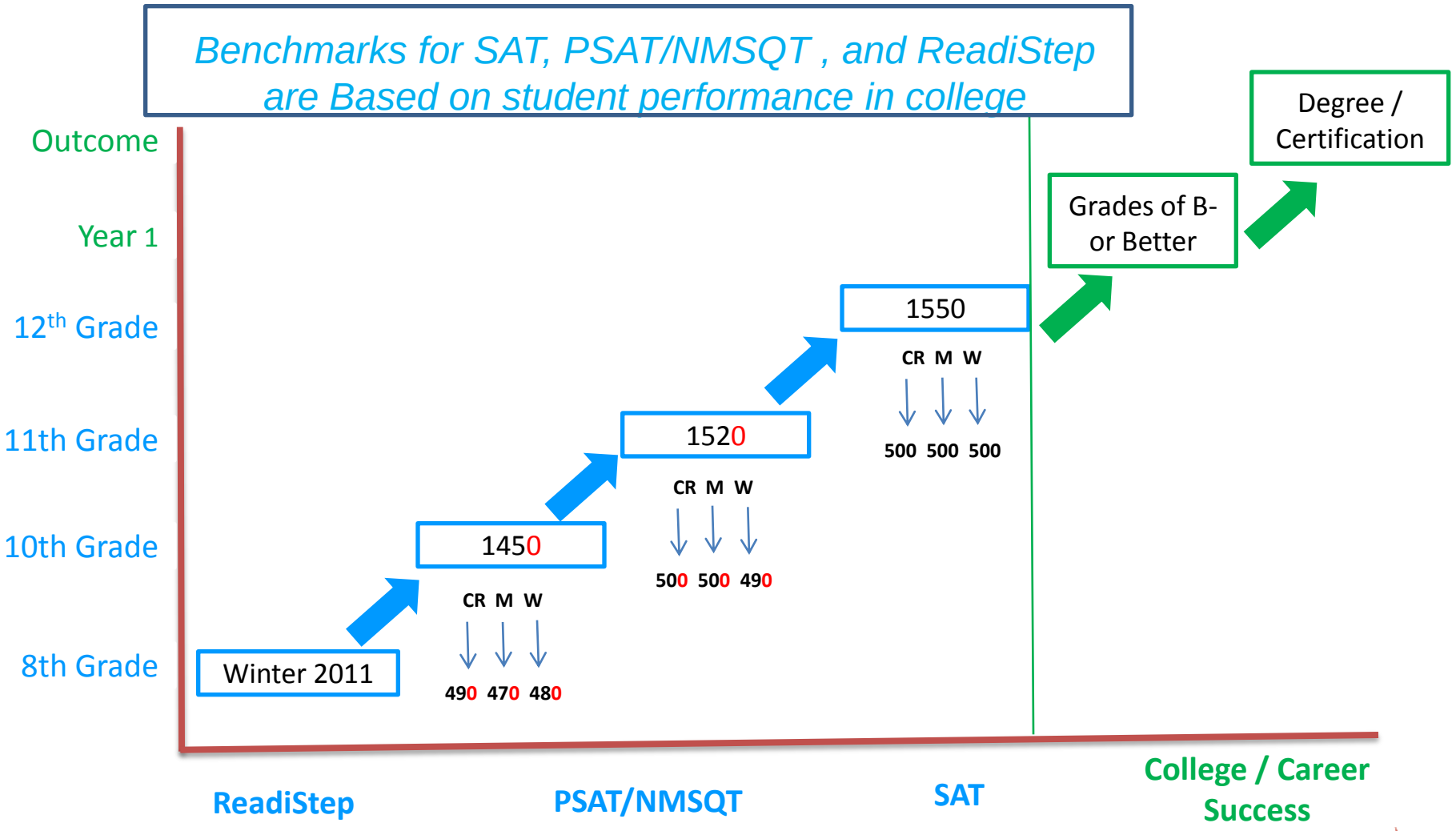
College Board's Readiness Benchmarks: Methodology

- Conducted a policy capturing process with national leaders in K-12 and Higher Ed to establish the criteria for college readiness:
  - 65% probability of freshmen college grades of 2.7 (B- or higher)
- To set **SAT** benchmarks –
  - conducted logistic regressions to determine which **SAT** scores correspond to a 65% probability of 2.7 or higher.
- To set PSAT/NMSQT benchmarks –
  - conducted additional logistic regressions to determine which **PSAT/NMSQT** scores (in 11th and 10th grades) have a 65% probability of obtaining the **SAT** benchmark scores.
- Will set benchmarks on the new 8th grade **ReadiStep** this fall using comparable groups in a national norming and scaling study
  - 10th and 8th graders each take **PSAT/NMSQT and ReadiStep**

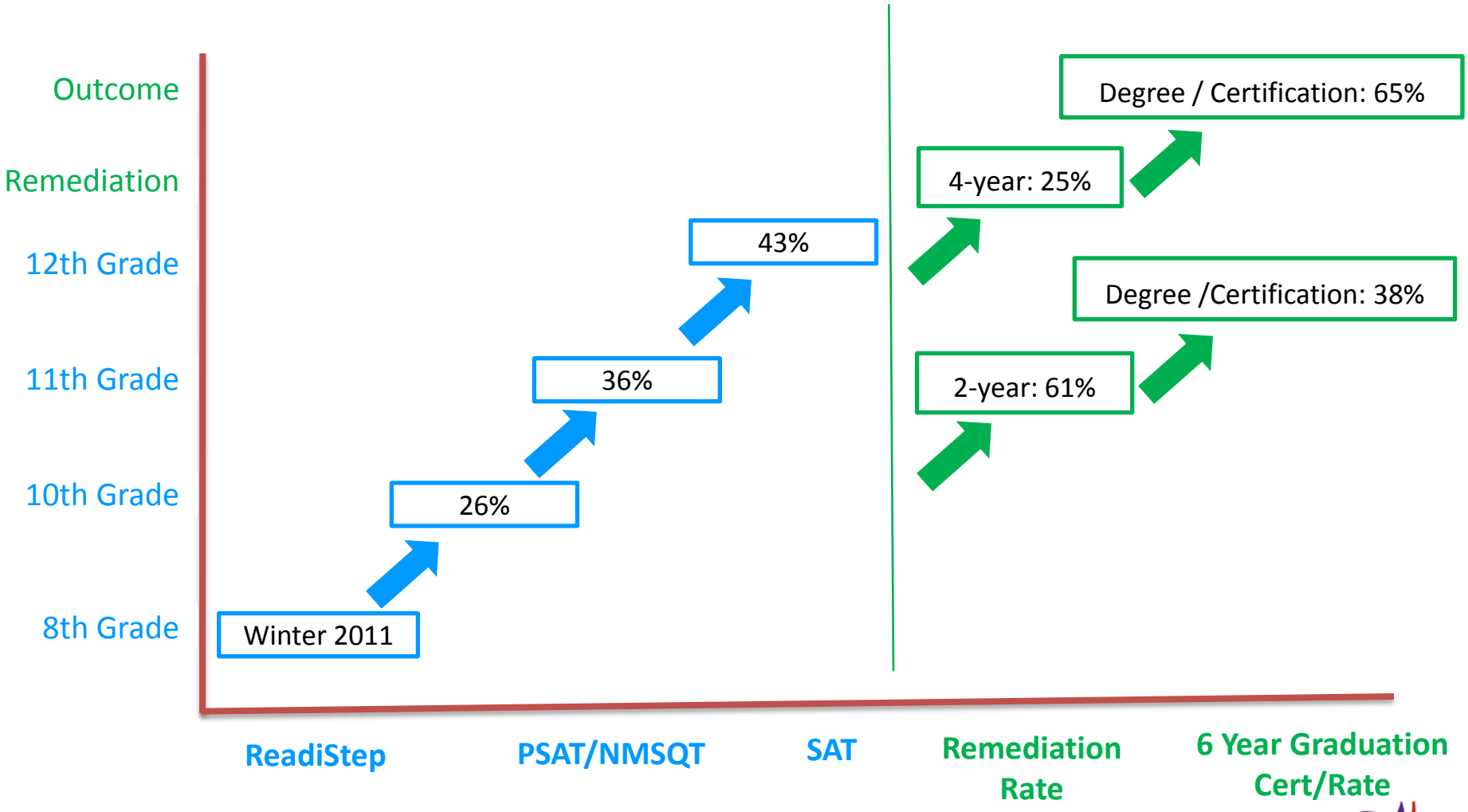
Datasets used to Set Benchmarks

- SAT Benchmarks and Academic Rigor work (n=68,000)
  - 68,000 students from the entering freshman class of 2007 who attended one of 110 colleges participating in the SAT validity study. All student had:
    - SAT Scores
    - Self-reported HSGPA
    - Self-reported coursework data
    - College grades and GPA
- PSAT/NMSQT 11th Grade Benchmarks (n=585,000)
  - Approximately 585,000 students who completed the PSAT/NMSQT as a junior in October 2007 and took their first SAT Exam in March, May, or June of 2008.
- PSAT/NMSQT 10th Grade Benchmarks (n=710,000)
  - Approximately 710,000 students who completed the PSAT/NMSQT in the fall of 2007 as a sophomore and in the fall of 2008 as a junior.

Benchmarks for College Readiness



Benchmarks for College Readiness: Are U.S. Students on Track to Succeed?



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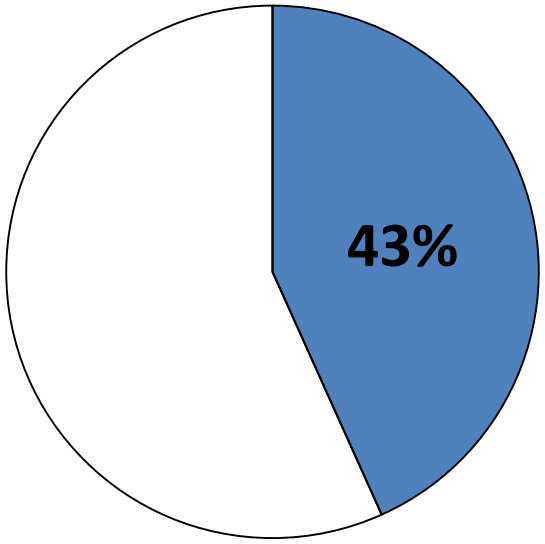
National SAT Cohort College and Career Readiness Rate

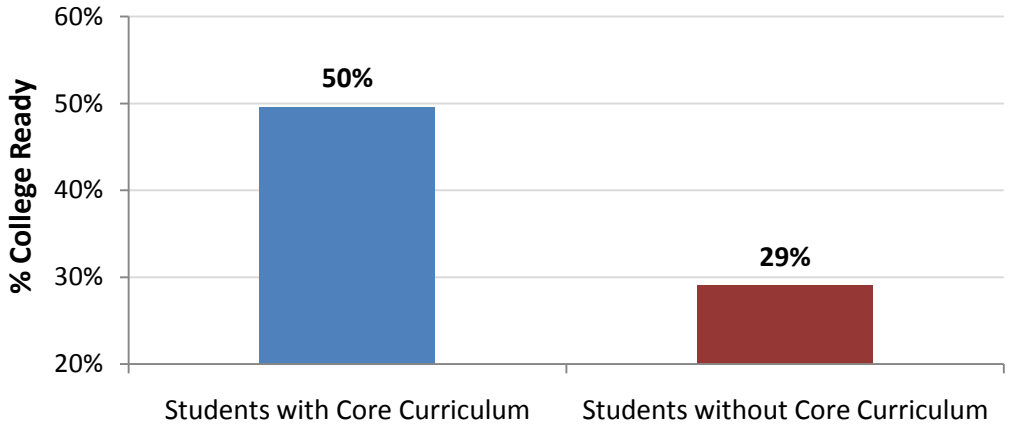
- Among students from the class of 2010 who took the SAT, 43% achieved a combined score of 1550 or greater
- College and career readiness rates differ between students with core curriculum preparation and those without

2010 SAT Cohort - US 50 States + DC

% College Ready

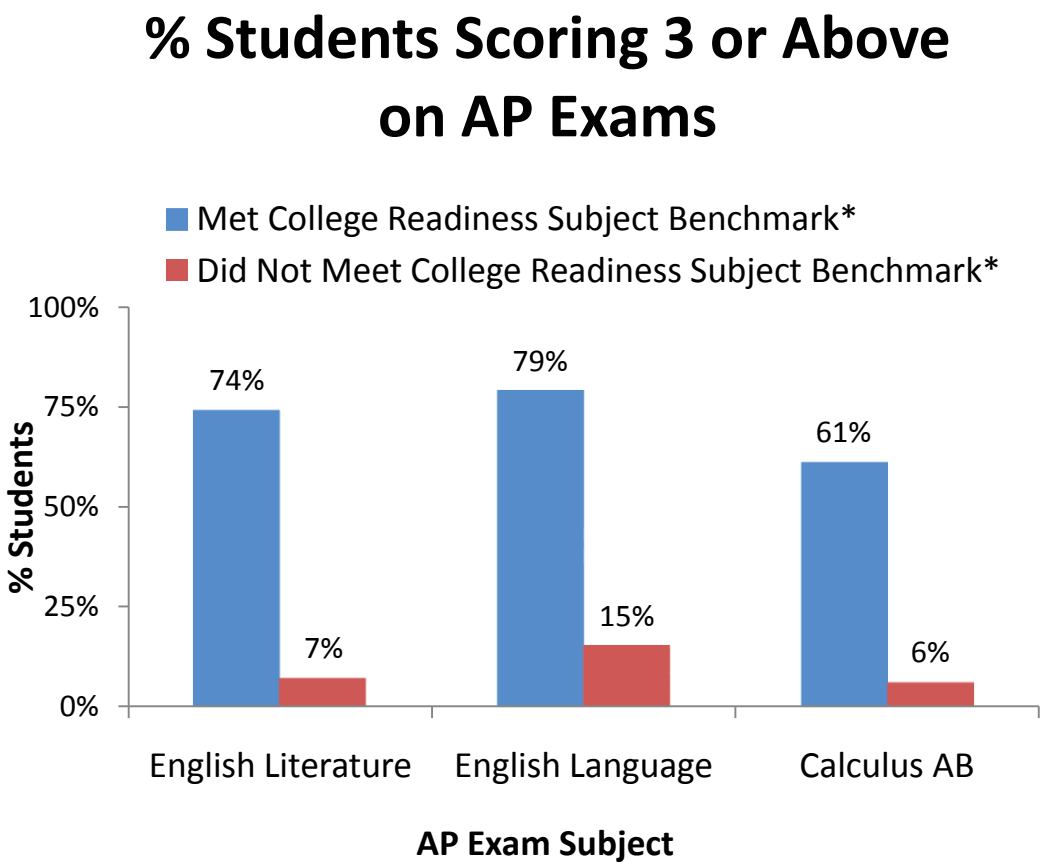


College Readiness by Core Curriculum Participation



**Note: The 1.5MM 2010 SAT tester cohort represent 44% of the 3.3MM total students in the US graduating class of 2010; core curriculum is defined by at least four years of English, and at least three years of mathematics, three years of natural science, and three years of social science and history*

College Ready benchmarks and AP examination performance



Students who met or exceeded the SAT subject level benchmark score are also more likely to achieve a score of 3 or higher on an AP exam in that discipline

** In this chart, Critical Reading benchmark was associated with English Literature AP exam score, Writing benchmark with English Language AP exam score, and Math benchmark with Calculus AB AP exam score; based on national 2010 cohort data: N=254,873 for AP English Literature; N=247,821 for AP English Language; N=177,964 for Calculus AB*

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APPENDIX

Academic Rigor – In Progress

- Academic rigor or academic intensity refers to academic challenge associated with high school curriculum.

- Academic intensity is positively related to:
  - the number of credits earned during freshman year
  - FYGPA
  - Lower remediation rates (Adelman, Daniel, Berkovits & Owings, 2003)

- The College Board has developed an academic rigor index based on self-reported high school coursework.

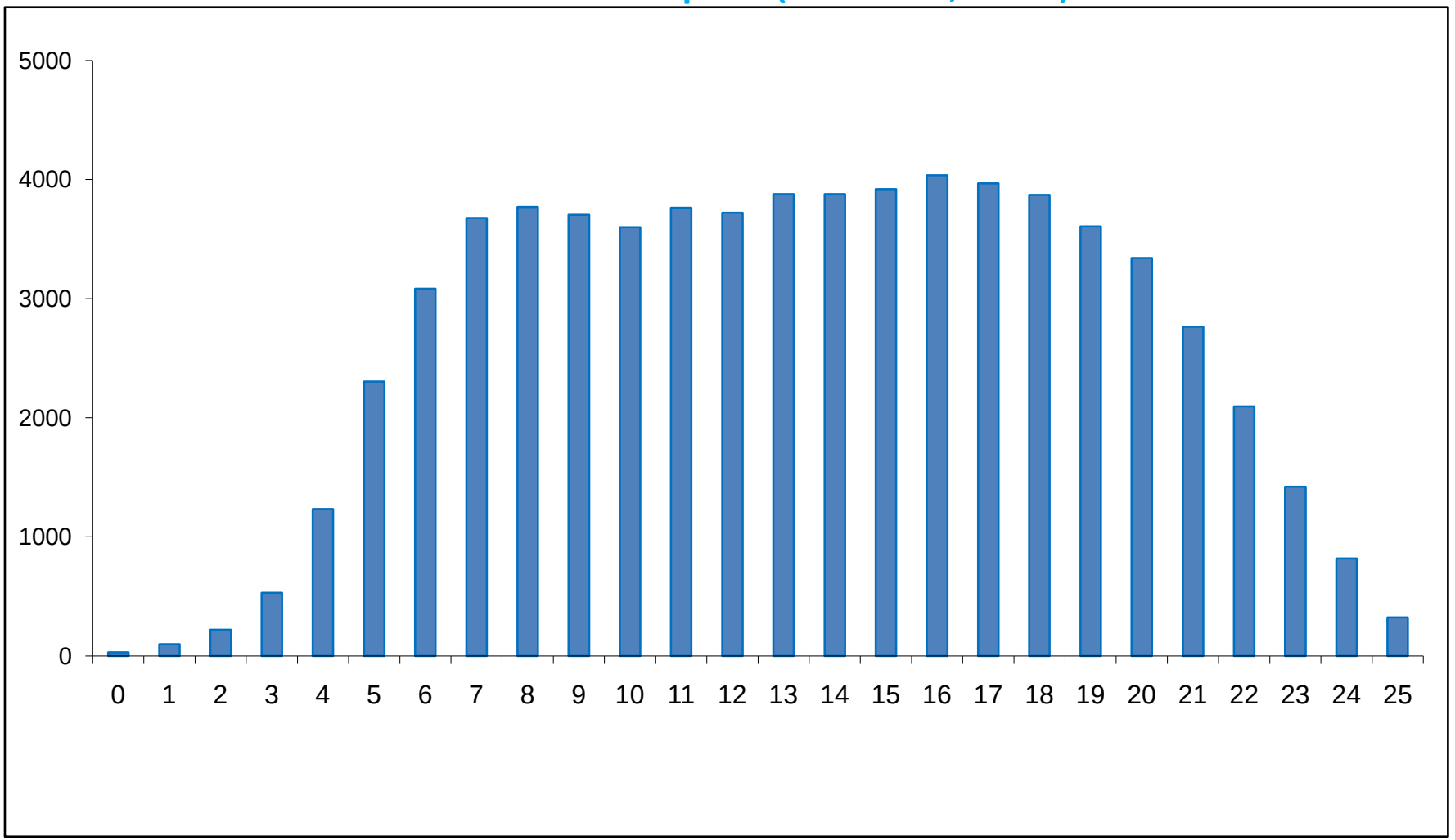
Overview of the Academic Rigor Index

- The type of courses associated with college success (FYGPA) differed by subject area.
  - Math
    - The most advanced course taken (e.g. trigonometry, pre-calculus or calculus) in each grade was most associated with college grades.
  - English and social science/history
    - Honors, dual enrollment, and AP Classes were most strongly associated with college grades
  - Science
    - Both the number and type of courses mattered (e.g. biology, chemistry, and physics) as well as participation in honors, dual enrollment, and AP courses were all associated with College grades
  - Foreign/ classical language
    - Both the number of years of study and honors, dual enrollment, and AP participation were most related to college grades

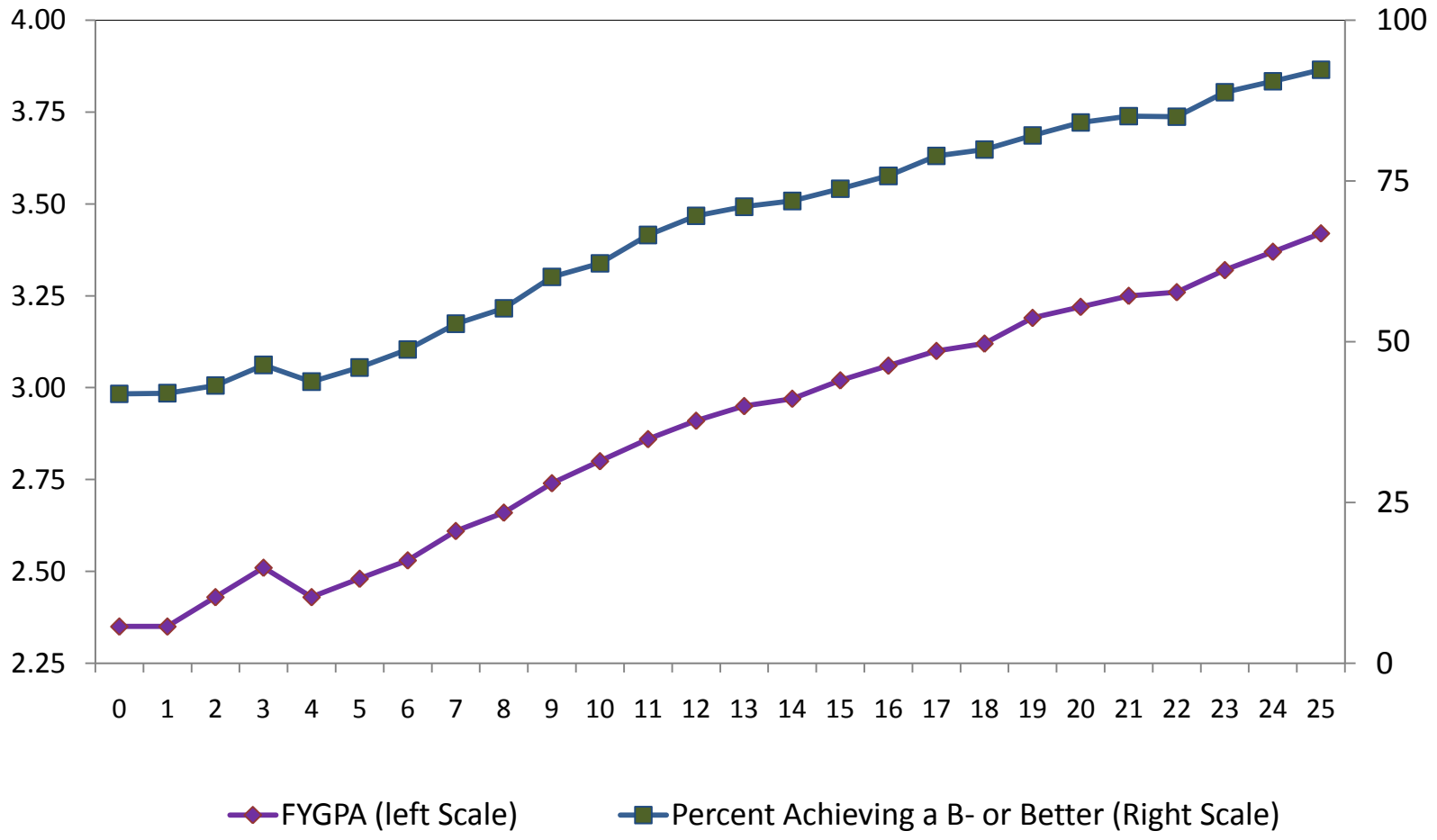
Overview of the Academic Rigor Index

- Academic Intensity is calculated for each of 5 academic areas:
  - **English**
  - **Mathematics**
  - **Science**
  - **Social science/history**
  - **Foreign/classical languages**
- Between 0 and 5 points are awarded within each subject area
- Points were awarded based upon the relationship between course participation and FYGPA.
- The score from each of the 5 subjects (ranging from 0-5) is summed to create a 0-25 point scale.

Distribution of Academic Intensity Scores for the Sample (N = 67,644)



The Relationship between the Academic Rigor Index (ARI) and FYGPA



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For additional information

- The College Board's Common Core State Standards and Assessment Page *http://professionals.collegeboard.com/policy-advocacy/policy/common-state-standards*
- **For additional data and research go to:** *http://professionals.collegeboard.com/data-reports-research*

Related College Board Research Reports

- Proctor, T. P., Wyatt, J. & Wiley, A. (2010). *PSAT/NMSQT® Indicators of College Readiness. (College Board Research Rep*ort No. 2010–4). http://professionals.collegeboard.com/profdownload/pdf/10b_2587_PS AT_IndicatorsOfReadiness_WEB_101018.pdf
- Wiley, A., Wyatt, J. & Camara, W.J. (2010). *The Development of a Multidimensional Index of College Readiness. College Board Research Report No. 2010-3*). http://professionals.collegeboard.com/profdownload/pdf/10b_2084_DevMultiDimenRR_WEB_100618.pdf
- Wyatt, J., Kobrin, J., Wiley, A., Camara, W. & Proestler, N. (in press). *Development of a College Readiness Benchmark and its Relationship to Secondary and Post- Secondary School Performance.*
- Wyatt, J., Wiley, A., Camara, W, J. & Proestler, N. (in press). *The development of an index of academic rigor for college readiness.*

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