

# Best Practices for AP Programs

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In the following report, Hanover Research assesses best practices in AP programs. The report concentrates on identifying practices that increase student performance on AP exams, particularly for at-risk and traditionally underserved minority students.

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## EXECUTIVE SUMMARY AND KEY FINDINGS

In this report, Hanover Research assesses best practices in AP programs. The report concentrates on identifying practices that increase student performance on AP exams, particularly for at-risk and traditionally underserved minority students. The report is divided into two sections and an appendix.

- **Section I** discusses strategies and practices that have been correlated with increased passing rates on AP exams, as well as practices that responsibly expand access to AP courses for minority and at-risk students.
- **Section II** profiles AP program practices at school districts that have been nationally recognized for their improved student performance on AP exams and for increasing access to AP courses.
- The **appendix** provides national AP exam participation and performance data. These data are included to provide benchmarks for national performance averages, across the range of potential exam scores, both in aggregate and disaggregated by minority population (African-American and Hispanic).

### KEY FINDINGS

- **Research suggests that participation in the AP program is unlikely to reduce the cost of a college education.** Researchers note that despite the common claim that success on AP exams—and the college credits that students can earn as a result—make college more affordable, most students do not earn enough credits to reduce their time to degree. Additionally, most students who are eligible for college credit nonetheless repeat in college those courses for which AP credit is available.
- **School districts and education advocacy groups emphasize the importance of teacher professional development opportunities to enhancing AP student performance.** AP Summer Institutes offered by the College Board, as well as other professional development activities such as AP teacher collaboration and new AP teacher mentorship, are cited as commonly used and beneficial resources. However, despite the widespread emphasis on teacher professional development, research indicates that it is very difficult to correlate specific teacher professional development activities and programs with improved student achievement.
- **Vertical alignment of curricula and pre-AP/AP teaching teams are recognized as essential strategies for preparing students to succeed in AP courses and on AP exams.** By vertically aligning curricula, school districts systematically help students to build the skills they need to meet the demands of rigorous AP coursework, as opposed to hoping that pre-AP coursework will inherently teach students what they need to know. Similarly, by establishing AP Vertical Teams, districts ensure that pre-AP and AP teachers collaborate to create unified course materials that prepare students for subsequent challenges, and, ultimately, for AP courses.

- **Districts and educators also highlight the importance of providing a variety of support structures for AP students.** Such supports include AP Summer Boot Camps, which teach students skills they need for AP courses and help them to build a support network among fellow AP students and AP teachers, as well as extra-curricular tutoring. Some school districts offer financial support, either by paying student fees for taking the AP exam or by providing incentives for passing scores.
- **It is important for school districts to identify students who are likely to succeed in AP courses and to encourage them to enroll.** Tools like AP Potential enable administrators and AP coordinators to identify students whose grades and performance on standardized tests suggest they are prepared for the rigors of AP. Proper identification of talent is important for expanding access to AP while ensuring that students enrolled in AP courses will benefit from them. Some research suggests that students who cannot pass the AP exam may not benefit from AP courses, despite the frequent claim to the contrary.

## SECTION I: IMPROVING AP SCORES

This section discusses AP program strategies and practices associated with expanded access to AP courses and improved student performance on AP exams. In particular, this section focuses on practices that increase the passing rate (i.e., a score of three or better) for traditionally underserved minorities and students from low-income families. The practices discussed primarily fall under three categories: teacher professional development, student support, and curricular design.

### TEACHER PROFESSIONAL DEVELOPMENT AND PRACTICES THAT AFFECT AP PERFORMANCE

Researchers frequently acknowledge the difficulty associated with accurately assessing the impact of teaching practices on student achievement. In a review of numerous studies of the correlation between teacher practice and student achievement, Paek et al. highlight a variety of challenges that mitigate that accuracy of such studies, noting that the studies reviewed:

...indicate some of the difficulties in linking teacher practices to student achievement gains: the difficulty of representing the complexity of classroom practices and dynamics, the challenge of accurately measuring student learning, problems in collecting the data at the teacher level, and the temptation to make causal inferences from observational studies.<sup>1</sup>

Despite the difficulty of linking teacher practices to student achievement, Paek et al. designed a survey-based study of AP teacher practices, the survey being “the method of choice to get a relatively large sample as needed for adequate statistical analysis.”<sup>2</sup> The survey was designed to assess “several practices representative of what little is known about AP teachers’ practices; while also including specific practices that we hypothesized, based on the literature review, to be more effective,” as well as factors that affect teacher practices, such as substantive expertise and training, school context, and classroom context for AP Biology and AP U.S. History courses.<sup>3</sup> The study found that “professional development was consistently significant in models for both subjects,” as were school and class context.<sup>4</sup> Figure 1.1, on the next page, shows the variables that were determined to be statistically significant in terms of their impact on student AP exam performance.

<sup>1</sup> Paek, Pamela, et al. “The Relationship of AP Teacher Practices and Student AP Exam Performance,” College Board, 2007. p.4. <http://www.ets.org/Media/Research/pdf/RR-05-10.pdf>

<sup>2</sup> Ibid.

<sup>3</sup> Ibid. p.5.

<sup>4</sup> Ibid. p.24.

**Figure 1.1: Variables That Affect Student Performance on AP Exams**

COURSE	STATISTICALLY SIGNIFICANT (p < 0.10) VARIABLES	
	AP score ≥ 3	AP Score ≥ 4
<b>AP Biology</b>	Overall (teacher) experience PD: Attended an AP Institute PD: Review AP Biology Teacher’s Guide IOR: Schedule Percentage of students who take exam Class size OB: Learn scientific methods AS: Tests requiring lengthy responses RA: Estimate of time students study on their own	IOR: Exemplary syllabi IOR: Schedule IOR: AP Exam topics and/or scoring rubrics Percentage of students who take exam Teach test-taking strategies SA: Explain reasoning or thinking CU: Teacher research info on the Web Focus on AP Exam preparation Last month’s percentage of class time to prepare for exam RA: Estimate of time students study on their own
<b>AP U.S. History</b>	PD: Collaborate with mentor teacher PD: Review of released AP Exams PD: Participated in AP Reading(s) IOR: Schedule Adequacy of school resources School policy: Who takes the exam Percentage of students who take exam OB: Skills for supporting claims OB: Historical research skills/techniques SA: Explain reasoning or thinking RA: Estimate of time students study on their own	Educational level attained IOR: Schedule Adequacy of school resources Percentage of students who take exam OB: Historical research skills/techniques SA: Explain reasoning or thinking RA: Estimate of time students study on their own

**Abbreviations used in this table:**

AS: assessment, CU: computer use, FB: feedback, IOR: influence of resources, OB: objectives, PD: participation in professional development activities, RA: review activity, SA: student activity.

Source: Paek et al.<sup>5</sup>

Other research suggests that the importance of AP-specific professional development for teachers, as well as overall teacher qualifications, is not at all clear. A recent study by the College Board, titled “An Analysis of the Relationship Between School-Level AP Professional Development Activity and Subsequent Student AP Performance,” found “some incremental evidence that a school culture that includes significant engagement in professional development activities is associated with higher student performance” on the AP exam.<sup>6</sup>

However, a 2002 report from the College Board—which surveyed AP Calculus and AP English Literature and Composition teachers—indicated that research found **little relation between teacher preparation and minority student success**. The report notes that “overall, the teacher’s experience in teaching, academic degrees and certification, attendance at AP workshops and Summer Institutes, or general sources of support at school, did not appear

<sup>5</sup> Ibid. p.23.

<sup>6</sup> Laitusis, Vytas. “An Analysis of the Relationship Between School-Level AP Professional Development Activity and Subsequent Student AP Performance,” College Board, 2012. p.11.  
<http://research.collegeboard.org/sites/default/files/publications/2013/1/researchreport-2012-8-advanced-placement-professional-development-student-performance.pdf>

to be related to success in teaching minority students.”<sup>7</sup> Moreover, the study found that teachers’ “specific academic preparation in the subject and professional development in teaching techniques are also generally not related to success.”<sup>8</sup>

### *COLLEGE BOARD AP PROGRAM EDUCATOR RESOURCES*

The College Board offers a variety of professional development resources for educators designed to help teachers improve the quality of instruction and student performance on AP exams. These resources include:

- **AP and Pre-AP Summer Institutes:** These institutes are subject-specific opportunities that provide AP teachers “with the support and training needed to teach AP courses and to utilize pre-AP teaching strategies. Teachers from around the world come together at these institutes to exchange ideas and information about AP courses and exams.”<sup>9</sup> Topics covered include:<sup>10</sup>
  - AP courses: goals, objectives, content, resources, bibliographies, and equipment
  - The AP Examination: how it is developed and graded
  - Syllabi, lesson plans, and assignments
  - How to refresh and improve existing AP courses
  - Recent changes in AP Course Descriptions
  - Strategies for teaching students at beginning or intermediate levels
  - Vertical teaming
- **AP Potential:** AP Potential is a “free Web-based tool” designed to help schools and districts identify potential AP students.<sup>11</sup> The tool enables educators to:<sup>12</sup>
  - Identify students likely to succeed on AP Exams
  - Improve access to AP
  - Analyze data and PSAT/NMSQT scores
  - Ensure that no student with the potential to succeed in AP is overlooked
  - Help make determinations as to which AP courses to offer
- **AP Vertical Team Workshops:** The College Board offers a number of workshops pertaining to the establishment and facilitation of effective vertical teams for pre-AP/AP curricula and programs.<sup>13, 14</sup>

<sup>7</sup> Burton, Nancy W., et. al. “Minority Student Success: The Role of Teachers in Advanced Placement Courses.” College Board. Jan. 2002. p.19. <http://research.collegeboard.org/sites/default/files/publications/2012/7/researchreport-2002-8-minority-student-success-role-teachers-advanced-placement.pdf>

<sup>8</sup> Ibid.

<sup>9</sup> “AP and Pre-AP Summer Institutes,” College Board. <http://professionals.collegeboard.com/prof-dev/workshops/summer-institutes>

<sup>10</sup> Bullet points quoted from: Ibid.

<sup>11</sup> “AP Potential,” College Board. <http://professionals.collegeboard.com/k-12/prepare/appotential>

<sup>12</sup> Bullet points quoted from: Ibid.

<sup>13</sup> “Pre-AP Instructional Leadership Through AP Vertical Teams,” College Board. <http://professionals.collegeboard.com/prof-dev/workshops/k-12/pre-ap-ins-vertical>

## PROMISING PRACTICES FOR INCREASING STUDENT PERFORMANCE ON AP EXAMS

In its “Annual AP Report to the Nation,” the College Board identifies effective practices that promote expanded access to AP courses and improve student performance on AP exams. The strategies and practices in the 2012 report focus on ways that increase educational rigor, promote equity, and support STEM education (the 2013 report offers very similar recommendations, but in a more abbreviated form).<sup>15</sup> The district-level practices that the 2012 report identifies are highlighted in Figure 1.2.

**Figure 1.2: District-Level Practices for Improving AP Access and Student Performance**

GOAL	EFFECTIVE PRACTICES
<b>Increasing Rigor</b>	<ul style="list-style-type: none"> <li>■ Implement summer programs (e.g., summer “boot” or “boost” camps) to help students prepare for specific AP courses.</li> <li>■ Create networks where teachers and administrators in the district can collaborate to improve instruction and student success.</li> <li>■ Establish district-level AP Vertical Teams that meet at least four times per academic year.</li> <li>■ Use AP Potential to identify students in your district who are likely to succeed in AP courses.</li> <li>■ Where there are sufficient numbers of potential students for particular subjects, use these data to select new AP courses to offer.</li> </ul>
<b>Promoting Equity</b>	<ul style="list-style-type: none"> <li>■ Require secondary schools to review current AP course enrollment practices to ensure that all students have access to academic pathways that will prepare them for AP. Leverage AP Potential to help eliminate gatekeeping mechanisms such as entrance exams.</li> <li>■ Review district-wide student data to ensure proportionate AP enrollment, number of exams taken, course grades, and AP exam scores.</li> <li>■ Use AP Potential to identify minority students in the district who are likely to succeed in AP.</li> </ul>
<b>Supporting STEM</b>	<ul style="list-style-type: none"> <li>■ Implement grade-weighting policies for pre-AP and AP STEM classes, starting as early as the sixth grade.</li> <li>■ Use AP Potential to identify students in your district who are likely to succeed in AP math and science.</li> <li>■ Where there are sufficient numbers of potential students for particular subjects, use these data to select new math and science course offerings.</li> <li>■ Provide at least four opportunities per year for pre-AP and AP STEM teachers to vertically align their courses with the skills necessary for success in AP STEM subjects.</li> <li>■ Establish a program for pre-AP science classes that incorporates and develops the laboratory-based skills necessary for success in AP science.</li> </ul>

Source: College Board<sup>16</sup>

<sup>14</sup> “Pre-AP: Setting the Cornerstones for AP Vertical Teams,” College Board.

<http://professionals.collegeboard.com/prof-dev/workshops/k-12/pre-ap-vertical>

<sup>15</sup> “The 8<sup>th</sup> Annual AP Report to the Nation,” College Board. p.10.

[http://apreport.collegeboard.org/sites/default/files/downloads/pdfs/AP\\_Main\\_Report\\_Final.pdf](http://apreport.collegeboard.org/sites/default/files/downloads/pdfs/AP_Main_Report_Final.pdf)

<sup>16</sup> Practices quoted from: Ibid. p.26.



The 2014 annual AP report offers a set of effective strategies and practices used by school districts that the College Board has awarded its “District of the Year” accolade for their gains in the areas of expanded AP access and improved student performance on AP exams. Figure 1.3 presents these practices along with each district’s explanation of their implementation.

**Figure 1.3: Effective Practices for Improving AP Access and Student Performance**

PRACTICE	IMPLEMENTATION
<p><b>Align Curriculum and Instruction</b> <i>(Chelsea Public Schools, MA)</i></p>	<p>The district has worked to ensure that middle school and high school curricula are vertically aligned so that when students “get to a place where they could take an AP course, they’re prepared to do that.” The aligned program begins in sixth grade, and the district emphasizes the importance of starting early so that when students “get to AP, they have the fundamentals that [AP teachers] can build on.”</p>
<p><b>Support Teacher Professional Development</b> <i>(Glendale Union High School District, AZ)</i></p>	<p>The district emphasizes collaboration among AP teachers. For example, there are nine AP U.S. History teachers in the district and they meet once a semester to share best practices and new materials. The collaboration allows each teacher involved to benefit from the best of what the others are doing and to pass that benefit along to the students.</p>
<p><b>Remove Financial Barriers</b> <i>(Glendale Union High School District, AZ)</i></p>	<p>For every student that completes an AP course, the district pays for the exam. A teacher in the district suggests that this “sends an implicit message to students that this is something for them and we believe in [them] so much that we’re willing to pay the entrance fee.” It speaks to the district’s culture of trying to remove obstacles “so that students can access what they thought might have been inaccessible.”</p>
<p><b>Identify and Recruit Students with Potential</b> <i>(North East Independent School District, TX)</i></p>	<p>The district expends significant effort trying to identify students who may have success in AP courses. The tools that the district uses in this regard include disaggregated state testing data and AP Potential. In addition to identification, the school emphasizes regular meetings between students and counselors—at which they “just talk one on one and look at their testing data and find out what are their goals and aspirations”— in order to find students who might not participate in the program. As one teacher puts it, the district seeks to assure students “that we, the adults, are there to help them. We’re the support system and we’re going to use all the tools in the toolbox to make sure that they find success,” despite the challenges of AP coursework.</p>

Source: College Board<sup>17</sup>

<sup>17</sup> “10th Annual AP Report to the Nation,” College Board.  
<http://media.collegeboard.com/digitalServices/pdf/ap/rtn/10th-annual/10th-annual-ap-report-to-the-nation-single-page.pdf>

### *PROJECT-BASED LEARNING FOR AP COURSES*

A recent study (Knowledge in Action) suggests that “a course of quasi-repetitive projects can lead to higher scores on the AP test.”<sup>18</sup> Researchers at the University of Washington—who experimented with redesigned curricula for AP Government courses— found that AP Government students engaged in project-based learning at “poverty-impacted schools performed as well or better on the AP Exam” as compared with students in AP courses that followed more traditional curricula.<sup>19</sup> The study notes that students engaged in project-based AP government courses “in two poverty-impacted schools had an 88 percent pass rate (scoring 3 or higher out of 5) and a 55 percent high pass rate (scoring 4 or 5 out of 5) in comparison with the national average of a 24 percent pass rate and a ten percent high pass rate for students in comparable schools.”<sup>20</sup> Other notable findings from the study include:<sup>21</sup>

- Students in project-based AP Environmental Sciences courses at “poverty-impacted schools had a 19 percent higher pass rate” than students in more traditional courses at comparable schools.
- Students in project-based AP Environmental Sciences courses at poverty-impacted schools “on average, earned 33 percent higher scores on the AP Exam” than students enrolled in more traditional courses at control schools.
- “Teachers participating in the study saw gains of 20 percent on AP test pass rates when they adopted the Knowledge in Action [project-based learning] curriculum when compared with the performance of their students from the previous year at the same school using a traditionally taught curriculum.”

### *PRE-AP PREPARATION AND AP BOOT CAMPS*

With regard to expanding student access to AP courses, the National Center for Educational Achievement (NCEA) highlights the importance of adequate student preparation preceding enrollment in AP courses. The NCEA notes that:

AP courses are college-level courses designed for high school students who are ready for college-level coursework. Because of this, a student taking an AP course should be ready for college-level coursework in the relevant subject before taking the course in order to be adequately prepared to succeed in it. Embracing and promoting the notion that “AP is for everyone” does not relieve schools and school districts of the responsibility to ensure that students are adequately prepared to benefit from these courses. Therefore, educators and policymakers who are serious about expanding access to AP courses and exams should focus their attention on

<sup>18</sup> Parker, et al. “Beyond Breadth-Speed-Test: Toward Deeper Knowing and Engagement in an Advanced Placement Course,” *American Education Research Journal*, 2013.

<http://aer.sagepub.com/content/early/2013/10/01/0002831213504237.abstract>

<sup>19</sup> “Knowledge in Action Research: Results to Date,” Edutopia. <http://www.edutopia.org/knowledge-in-action-PBL-research-results>

<sup>20</sup> Ibid.

<sup>21</sup> Ibid.

ensuring that elementary, middle, and high school curricula prepare all students—**particularly minority and low-income students**—for college-level work.<sup>22</sup>

One way that schools and districts prepare students for the demands of AP coursework is through the use of “boot camps” that take place in the summer preceding AP course enrollment. Such boot camps take a variety of forms. For example, in York County School Division (Virginia), Tabb High School runs a three-day AP summer boot camp that helps **students new to the AP program** develop academic skills necessary for AP exam success.<sup>23</sup> The curriculum for the camp includes “lessons on how to approach multiple choice questions, essay writing basics, tips for success in math and science, how to build one’s vocabulary, and, perhaps most importantly, how to study.”<sup>24</sup> The curriculum culminates in a capstone project through which students demonstrate the skills and knowledge they developed over the course of the camp.

By contrast, the one-day AP summer boot camp run by Mitchell High School, of Pasco County Schools (Florida), focuses on building more generalized skills such as critical reading, teamwork, organization, problem solving, and communication.<sup>25</sup> Other goals of the program include:<sup>26</sup>

- Introduce students to the unique academic challenges of the JWMHS AP Program and how to excel as an AP Scholar;
- Discuss the practical application of critical reading, teamwork, organization, problem solving, and communication skills inside and outside the classroom; and
- Provide opportunities for students to develop a support network with their teachers and peers.

At Pioneer High School, in the Woodland Joint Unified School District (California), the AP summer boot camps are designed to develop general skills as well as specific academic skills. The subject-specific (AP European History) camps focus on “strengthening academic foundations and refining advanced learning skills,” such as time management, team building, and AP essay writing.<sup>27</sup> The camp consists of two three-day sessions and is free of charge (but has no funding from the school district).<sup>28</sup> Figure 1.4, on the next page, shows a sample schedule for a boot camp session.

<sup>22</sup> “The Advanced Placement Program Benefits Mainly Well-Prepared Students Who Pass AP Exams,” The National Center for Educational Achievement, ACT Inc. <http://www.nc4ea.org/linkservid/CABFA6CC-33AC-47BF-94E144B5EAB54145/showMeta/0/>.

<sup>23</sup> Lester, Amber. “Get Schooled: Boot Camp, AP Style.” WY Daily. April 30, 2010. <http://wydailyarchives.com/2010/04/30/get-schooled-boot-camp-ap-style/>

<sup>24</sup> Ibid.

<sup>25</sup> “4<sup>th</sup> Annual J.W. Mitchell High School Advanced Placement Boot Camp,” J.W. Mitchell High School. <http://jwmhs.pasco.k12.fl.us/wp-content/uploads/jwmhs/2014/05/updated-bootcamp-brochure-2014.pdf>

<sup>26</sup> Quoted from: Ibid.

<sup>27</sup> “Pioneer High School AP Boot Camp,” Pioneer High School. <http://pioneer-wjUSD-ca.schoolloop.com/APBOOTCAMP>

<sup>28</sup> Ibid.

**Figure 1.4: Pioneer High School AP Boot Camp Sample Schedule**

DAY	CONTENT
Day One	<ul style="list-style-type: none"> <li>▪ Group Dynamics</li> <li>▪ Class Expectations</li> <li>▪ AP Note-taking- Expectations and Tips</li> <li>▪ Summer Assignment</li> </ul>
Day Two	<ul style="list-style-type: none"> <li>▪ Time Management</li> <li>▪ FRQ's: What are they?</li> <li>▪ APPARTS assignments</li> <li>▪ Summer Assignment</li> </ul>
Day Three	<ul style="list-style-type: none"> <li>▪ DBQ's: What are they?</li> <li>▪ Student Led Discussions/ Study Groups</li> <li>▪ Summer Assignment</li> </ul>

Source: Pioneer High School<sup>29</sup>

### AP VERTICAL TEAMS

Another strategy—tied in directly with pre-AP preparation for students—that schools and districts frequently employ to improve student performance in AP courses and on the AP exam is to establish AP Vertical Teams. According to the Delaware Department of Education:

An AP Vertical Team is a group of teachers from different grade levels, typically grades 6 through 12, in a given discipline who work cooperatively to develop and implement a vertically aligned program aimed at helping students acquire the academic skills necessary for success in the Advanced Placement Program. Some AP Vertical Teams also include district administrators, principals, curriculum coordinators, and guidance counselors.<sup>30</sup>

The Rice University Center for College Readiness—which notes that AP Vertical teaming is intended to “equip students with the necessary foundational skills at each grade level, through vertical alignment of the curriculum, to ensure student success once they reach college level, AP courses”—has identified a number of essential elements that facilitate the effective functioning of AP Vertical Teams.<sup>31</sup> These include:<sup>32</sup>

<sup>29</sup> Ibid.

<sup>30</sup> “Pre-AP Initiatives and Vertical Teams,” Delaware Department of Education.

[http://www.doe.k12.de.us/infosuites/students\\_family/ap/profdev/cb\\_pages/cbw2.shtml](http://www.doe.k12.de.us/infosuites/students_family/ap/profdev/cb_pages/cbw2.shtml)

<sup>31</sup> “Vertical Teams,” Center for College Readiness, Rice University. <http://collegeready.rice.edu/vertical-teams>

<sup>32</sup> Bullet points quoted from: “Vertical Teams,” Center for College Readiness, Rice University. <http://collegeready.rice.edu/vertical-teams>

- Establishing a capacity-building program of high expectations for all students designed to increase rigor and improve student achievement in Advanced Placement courses and exams
- Creating a comprehensive document aligned to the AP Course Description standards that identify the key skills/content to be taught at each grade level
- Analyzing district data in order to assess students' academic strengths and weaknesses
- Developing a common language between middle school and high school teachers
- Providing support to professional learning teams
- Facilitating opportunities to analyze and reflect on curriculum implementation
- Building a communication network from which to pool resources

Moreover, the author of the College Board's AP Vertical Teams workshops, Teri Marshall, suggests that "the core competencies of a highly functional and successful AP Vertical Team" consist of coherence, commitment, collegiality, and collaboration.<sup>33</sup> Figure 1.5 highlights Marshall's explanation of these competencies.

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<sup>33</sup> As quoted in: Ibid.

**Figure 1.5: Competencies of Successful AP Vertical Teams**

COMPETENCIES	DESCRIPTION
<b>Coherence</b>	A coherent AP Vertical Team has a sense of unity and connectedness based upon a common understanding of the principles and philosophy of the College Board and its Advanced Placement Program. This provides a firm foundation on which the members of an AP Vertical Team can make decisions and set goals that are in clear support and observance of these tenets.
<b>Commitment</b>	Commitment is synonymous with obligation, duty, and pledge. An AP Vertical Team is composed of individuals who are committed to the actualization and application of the mission of the AP Program and pre-AP initiatives. The College Board trusts that the discipline-based AP Vertical Team will adhere to the principles of equity and excellence as it works to improve student participation and performance in the Advanced Placement Program.
<b>Collegiality</b>	Without the commitment to working towards a common set of goals and standards, collegiality cannot develop. The successful establishment of an AP Vertical Team depends upon the collegial relationship among its members. A collegial AP Vertical Team has continuous planning sessions on improving student learning and sharing expectations of quality work. . Ultimately, the collegial efforts of an AP Vertical Team will result in coherent school experiences and consistent academic expectations for students.
<b>Collaboration</b>	A collaborative team of teachers engages in mutual decision making to resolve curricular and instructional issues that impact student achievement. Student learning forms the foundation of all efforts of a collaborative team. The members of a collaborative AP Vertical Team feel secure in calling on one another to discuss new ideas or strategies that help build their expertise and contribute to student achievement. A collaborative spirit grows as members of the AP Vertical Team build trust among experienced and new members of the team, hold themselves accountable for attending meetings and implementing team decisions, and celebrate the progress and successes of their own achievements as well as their students.

Source: Center for College Readiness, Rice University<sup>34</sup>

### AP PROGRAM PRACTICES THAT ENCOURAGE MINORITY STUDENT SUCCESS: FINDINGS BY THE BROAD FOUNDATION

The Broad Foundation, which seeks to improve urban public education in the United States, has identified practices used in “urban school districts with promising trends in student achievement and college-readiness,” based on an analysis of “four years of AP exam participation and passing rates for students in the 75 districts whose demographics qualify them for consideration for the annual Broad Prize for Urban Education.”<sup>35</sup> Eligibility “in 2014 is based on CCD data for the 2010-2011 academic year;” the eligibility criteria for the Broad Prize for Urban Education are as follows:<sup>36</sup>

- K–12 districts serving at least 42,500 students that have at least 40 percent of students eligible for free or reduced-price school lunch (FRSL), at least 40 percent of students from minority groups, and an urban designation (Locale Code 11, 12, or 21

<sup>34</sup> Descriptions quoted from: Ibid.

<sup>35</sup> “New Report Details Strategies to Boost Access to, Performance on Advanced Placement Exams for African-American Students in Urban School Districts,” The Broad Foundation-Education. June 2013

<sup>36</sup> Quoted from: “Eligible School Districts,” The Broad Prize for Urban Education. [http://www.broadprize.org/about/eligible\\_school\\_districts.html#eligible](http://www.broadprize.org/about/eligible_school_districts.html#eligible)

- in the Common Core of Data\*). In states where more than 10 districts qualify under this criterion, only the 10 largest qualifying districts are eligible.
- In states with no districts meeting the criteria in the bullet point above, the next largest districts in the nation with at least 40 percent FRSL, at least 40 percent minority, and an urban designation, in order to bring the total number of eligible districts to 75. Only one district per state can qualify under this group of criteria.
  - Winners from the previous three years are ineligible (currently, Houston Independent School District, Miami-Dade County Public Schools, and Charlotte-Mecklenburg Schools).

The Broad Foundation’s analysis found that a variety of strategies and practices—from potential AP student identification to parental engagement—enabled districts “to raise performance on AP tests without losing ground on participation.”<sup>37</sup> Figure 1.6 highlights these strategies and practices for increasing access and narrowing achievement gaps between African American students and white students.

**Figure 1.6: Strategies and Practices for Increasing AP Student Enrollment and Performance**

- Offer a rigorous curriculum beginning in elementary grades
- Expand access to gifted programs
- Analyze student results on precursors to college entrance exams—like PSAT and EXPLORE—to identify potential AP students and actively recruit them to enroll in AP courses
- Provide extra academic and social support to students
- Dramatically increase the number of AP course offerings
- Offer additional teacher training and professional development
- Instill confidence in students about their college-going potential
- Educate parents about the benefits of AP

Source: Broad Foundation<sup>38</sup>

### *IDENTIFYING POTENTIAL AP TALENT TO EXPAND ACCESS*

The Broad Foundation’s report on promising practices for AP programs that seek to increase African American student participation and achievement notes that a key strategy for achieving this goal entails the “expansion of gifted selection criteria and a broader search for potential,” especially beginning in elementary school.<sup>39</sup> The report cites the example of the Fulton County School System (Georgia), where “in the past only two elementary schools housed gifted programs” and “fewer than 300 elementary students were identified as gifted” a decade ago.<sup>40</sup> Now, “the district has a gifted education teacher on staff at all 58 of

<sup>37</sup> “New Report Details Strategies to Boost Access,” Op cit.

<sup>38</sup> Ibid.

<sup>39</sup> “The Road to Equity Expanding AP Access and Success for African-American Students,” The Broad Foundation. p.3. <http://broadeducation.org/img/roadtoequity.pdf>

<sup>40</sup> Ibid. p.5.

its elementary schools” and more than 1,000 students are identified as gifted and “nearly 2,000 are receiving gifted services.”<sup>41</sup>

The report notes that the senior vice president for the AP program, Trevor Packer, claims that the “single most successful strategy in improving AP exam passing rates is a rigorous curriculum planned back to the start of elementary school” and “a powerful effect of the AP program can be to encourage higher standards to be implemented in the grades prior to AP.”<sup>42</sup> In addition to early identification of potentially gifted students, the districts highlighted by the Broad Foundation:

...continue to mine their student populations for potential talent in later years. Most of the six districts are using the College Board program AP Potential to analyze PSAT scores. Students’ PSAT scores have proven a far better predictor of success in AP courses than the more conventional criteria of grades: A College Board study showed only a 0.28 correlation between AP exam passage and grade point average, while the correlation with PSAT scores was 0.5 to 0.7.<sup>43</sup>

Jefferson County Public Schools (Kentucky) uses the EXPLORE test, which is affiliated with the ACT, to identify “possible AP talent.” The district also “improved its counseling process to help more students, particularly students of color, see themselves as college-going material” and “began a fast-track curriculum that advances participants through their required math courses by the end of sophomore year, freeing junior and senior year for such classes as AP Calculus and AP Statistics.”<sup>44</sup> The district also benefitted from the National Math +Science Initiative (NMSI) affiliated AdvanceKentucky program, which “offers financial incentives to teachers and students for boosting AP performance.”<sup>45</sup>

#### *ENCOURAGING AP ENROLLMENT AND SUCCESS THROUGH STUDENT SUPPORT*

An administrator at Jefferson Country Public Schools notes that, more than any specific strategy or intervention, the most important tactic for expanding AP access and success for minority students “is just giving these kids the confidence that they can do the work.”<sup>46</sup> In this regard, the Broad Foundation suggests that “student advising and parent outreach are critical components in the districts narrowing racial achievement gaps,” noting that:

Orange County [(Florida)] schools invite families to an annual AP Parent Night based on AP Potential results to outline the benefits of AP as an edge in college admissions and as a time- and money-saver if credit is obtained. Cobb County (Georgia) holds parent nights in the spring before course registration and in the fall to discuss how families can support their children in AP courses.<sup>47</sup>

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<sup>41</sup> Ibid.

<sup>42</sup> Ibid.

<sup>43</sup> Ibid. p.6.

<sup>44</sup> Ibid. p.7.

<sup>45</sup> Ibid.

<sup>46</sup> As quoted in Ibid.

<sup>47</sup> Ibid.



Other forms of support that districts provide, and which especially benefit minority students, include:<sup>48</sup>

- Orange County Public Schools funds six-week “AP Camps” on Saturdays leading up to the exams, paying teachers to provide additional preparation and providing student transportation;
- Cobb County School District middle and high schools offer an elective course for students wanting to develop the analytic skills required to do well in challenging classes;
- Garland Independent School District (Texas) offers Advancement Via Individual Determination (AVID), a national program to support students who will be the first generation in their families to go to college, at schools with high African-American and Hispanic populations.

### *TEACHER PROFESSIONAL DEVELOPMENT*

In addition to the previously mentioned financial incentives attached to increased student performance on AP exams, the districts examined in the Broad Foundation report use a number of strategies and practices to prepare teachers for the demands of teaching AP courses. For example, many of the districts send their AP teachers to College Board AP Summer Institutes; Orange County Public Schools “requires teachers to participate in a five-day College Board summer program before they’re eligible to start teaching an AP class.”<sup>49</sup>

The Fulton County School System “runs its own summer institute where veteran AP teachers model effective instruction for new AP teachers, with the added benefit that targeted students are invited to attend.”<sup>50</sup> During institute sessions, “new AP teachers first watch and then develop their own lessons, implemented later in the week as the veterans observe and offer feedback,” and students “learn strategies for success that are applicable with any AP class.”<sup>51</sup>

### **CHALLENGES THAT ACCOMPANY INCREASED AP ACCESS**

Despite the numerous benefits of the AP program, there are significant challenges associated with the expanded access to AP courses that has been a key goal of the College Board, advocacy groups, and school districts across the United States. Education observers have noted that the accepted narrative of the AP program—that expanded access benefits all students who participate in the program—may not reflect the reality in classrooms. In particular, accompanying expanded participation in the program has been a concomitant decline in the overall pass rate, of “four percentage points (to 57 percent),” leading some to

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<sup>48</sup> Ibid. pp.8-9.

<sup>49</sup> Ibid. p.10.

<sup>50</sup> Ibid.

<sup>51</sup> Ibid.

question the value of the program to students who participate but who cannot pass their AP exams.<sup>52</sup>

Philip Sadler, co-editor of the book *AP: A Critical Examination of the Advanced Placement Program*, notes that “although the College Board says that simply taking an AP course is really a very positive thing for students—because it shows them what college-level work is and that it’s advantageous for all students,” research finds that “students who take AP courses in the sciences and then fail the AP exam don’t appear to do any better in their college science courses than those who haven’t taken an AP course at all.”<sup>53</sup> Additionally, Sadler highlights the opportunity costs that can be associated with AP courses. He notes that “students who fail—who don’t pass the AP exam...don’t appear to have learned anything during the year, so there is probably a better course for them.”<sup>54</sup> Economists note that the AP courses divert resources—such as the best teachers and the best materials—that could be used “for other advanced courses that would be more appropriate for these students’ level,” or “for other kids who might need more help or support.”<sup>55</sup>

Additionally, experts have challenged the claim that the AP program can increase the likelihood that students will graduate. One study found that “students (**and particularly low-income students and students of color**) who failed an AP exam were no more likely to graduate from college than were students who did not take an AP exam.”<sup>56</sup> Likewise, other studies have found that—accounting for background variables, “such as family income and parental education,” and “controlling for academic and socioeconomic factors”—having taken AP courses had a statistically insignificant impact on student performance.<sup>57</sup>

Moreover, research has disputed the argument that AP courses can make college more affordable. The argument holds that enrollment in AP courses shorten the time it takes to earn a degree, thereby reducing the cost of that degree. However, researchers have shown “**that after controlling for background variables between AP and non-AP students, taking AP courses has very little impact on time to degree.**”<sup>58</sup> The reasons for this minimal impact include:<sup>59</sup>

- **Differential treatment of AP scores by colleges:** “While some colleges allow students to earn college credit with a passing exam score, others may advance students to the next level in a given subject but not award them any credit. Moreover, the very definition of a passing score varies from school to school, with a

<sup>52</sup> “The Advanced Placement backlash: Is the pendulum swinging too far?” Michael and Susan Dell Foundation. <http://www.msdf.org/blog/2013/08/the-advanced-placement-backlash/>

<sup>53</sup> As quoted in: Hood, Lucy. “Putting AP to the Test: New Research assesses the Advance Placement program,” Harvard Education Letter, Harvard Education Publishing Group, 2010. [http://hepg.org/hel-home/issues/26\\_3/helarticle/putting-ap-to-the-test\\_466](http://hepg.org/hel-home/issues/26_3/helarticle/putting-ap-to-the-test_466)

<sup>54</sup> Ibid.

<sup>55</sup> Ibid.

<sup>56</sup> “The Advanced Placement Program: Living Up To Its Promise?” Challenge Success. pp.3-4.

<http://www.challengesuccess.org/Portals/0/Docs/ChallengeSuccess-AdvancedPlacement-WP.pdf>

<sup>57</sup> Ibid. p.4.

<sup>58</sup> Ibid. p.5.

<sup>59</sup> Ibid.

- 3, 4, or 5 constituting a passing score at many schools and departments, while only a 4 or above is a passing score at others.”
- **Repetition of AP courses in college:** Many students who are eligible to receive college credit for their AP scores nonetheless elect to repeat the course.
  - **Not enough AP credits earned to reduce time to degree:** “It is rare that students pass enough AP exams to skip an entire semester or full year ahead, thus allowing them to graduate in three or three and a half years.”

## SECTION II: DISTRICT PROFILES

This section profiles school districts that have received national recognition for their AP program improvements in the areas of expanded access and increased passing rates on the AP exam. Specifically, these profiles focus on the strategies and practices used by the school districts to increase access and improve student performance.

### DALLAS INDEPENDENT SCHOOL DISTRICT (TX)

A 2011 AP District of the Year award winner, Dallas ISD has increased overall enrollment in AP courses and improved the passing rate for students who take the AP exam.<sup>60</sup> The key element of the Dallas ISD's AP program to which much of its success has been attributed is the AP Incentive Program (APIP). The program is designed to increase the number of students who enroll in AP courses and achieve passing scores on AP exams. Through the AP Incentive Program, students are rewarded cash bonuses from \$100-\$500 for each AP exam on which they earn a score of at least a 3.<sup>61</sup> Moreover, APIP provides tutoring and special preparatory sessions for students in AP classes.

In addition to offering support and incentives to AP students, APIP provides teachers with instructional support and financial incentives specific to their AP classes. Specially trained "master teachers" instruct other AP teachers and help to design course materials.<sup>62</sup> Furthermore, teachers receive an annual stipend of \$500-\$1,000 for attending professional training sessions or providing extra-curricular tutoring to AP students; "master teachers" receive a \$10,000 stipend.<sup>63</sup> With regard to student performance incentives, under APIP teachers receive between \$100 and \$500 for every passing score their students earn.<sup>64</sup>

In a report on the program, a teacher at a district high school noted that the financial incentive attached to success on AP exams has worked well to engage students with extracurricular support structures, such as after-school tutoring and student study groups.<sup>65</sup>

**The program has also had demonstrable success in increasing the number of minority students.** Before the program was inaugurated, in 1995, only 29 Hispanic or African American students at Dallas ISD high schools earned passing scores on AP exams.<sup>66</sup> In 2005, 517 minority students from these two groups received a passing score on an AP exam.<sup>67</sup>

<sup>60</sup> "2011 AP District of the Year Awards." College Board. <http://media.collegeboard.com/homeOrg/content/pdf/11b-3455%20AP%20District%20Achieve%20FINAL%20WEB-PDF%203-11-11.pdf>

<sup>61</sup> "Increasing Rigor Through AP Courses: The Dallas Advanced Placement Incentive Program." The National Center for Public Policy and Higher Education. p. 2. [http://www.highereducation.org/reports/Policy\\_Practice/DallasAP.pdf](http://www.highereducation.org/reports/Policy_Practice/DallasAP.pdf)

<sup>62</sup> "\$1.5 million TI Foundation grant helping expand Dallas ISD AP Incentive Program." Texas Instruments Corporate Citizenship. Oct. 2010. [http://www.ti.com/corp/docs/csr/news\\_ap\\_incentive.shtml](http://www.ti.com/corp/docs/csr/news_ap_incentive.shtml)

<sup>63</sup> Ibid.

<sup>64</sup> Ibid.

<sup>65</sup> Ibid.

<sup>66</sup> "Increasing Rigor Through AP Courses," Op cit.

<sup>67</sup> Ibid.

The success of APIP in improving minority student performance has come as part of a broader improvement in student performance. In 2005, the number of passing scores earned by students in the district was 7.6 times greater than it was in 1995, and the district's position on the College Board honor roll highlights the district's continued improvement in recent years.<sup>68</sup> Figure 2.1 presents student enrollment and performance data related to APIP.

**Figure 2.1: Dallas ISD AP Enrollments and Passed AP Exams**

YEAR	NUMBER OF STUDENTS ENROLLED IN AP COURSES	NUMBER OF AP EXAMS TAKEN	NUMBER OF AP EXAMS PASSED*
1995	269	379	157
1996	278	1,130	361
2005	2,122	3,567	1,192

Source: National Center for Public Policy and Higher Education<sup>69</sup>

\*Score of 3 or higher

In Texas, APIP is managed by Advanced Placement Strategies, Inc. However, in 2008 the National Math and Science Initiative (NMSI) adopted the model and has since replicated it in school districts throughout the United States.<sup>70</sup>

### **NORTHSIDE INDEPENDENT SCHOOL DISTRICT (TX)<sup>71</sup>**

From 2007 through 2010, the percentage of students that completed AP courses at Northside ISD increased significantly, by 13 percent, and the district was recognized as a 2011 AP District of the Year by the College Board.<sup>72, 73</sup> The district has correlated some of the increased participation in the AP program to an increase in teacher emphasis on the potential for students to earn college credit by passing the AP exam.<sup>74</sup> Moreover, the district seeks to remove financial barriers to students taking the AP exam, so it earmarks a portion of its state funding "to offset student fees for taking the AP tests."<sup>75</sup>

#### *PROFESSIONAL DEVELOPMENT AND TRAINING*

One important strategy that Northside ISD uses to recruit potential AP students is to put on a series of Parent Awareness Nights for parents of middle school students. These events inform middle school parents, particularly those of 8<sup>th</sup> grade students, about pre-AP and AP courses. Parents of high school students new to the AP program may also attend these information sessions. The district also notes that its efforts to align pre-AP and AP course

<sup>68</sup> Ibid.

<sup>69</sup> Ibid.

<sup>70</sup> "About Us," Advanced Placement Strategies. <http://www.apstrategies.org/AboutUs.aspx>

<sup>71</sup> Some of the information in this section is taken from a previous Hanover report on improving AP student achievement: Enhancing AP Program Performance, March 2012.

<sup>72</sup> "NISD sees explosive growth in Advanced Placement enrollment." NISD Communications Department. July 2, 2010. <http://www.nisd.net/news/articles/814>

<sup>73</sup> "2011 AP District of the Year Awards." College Board. <http://media.collegeboard.com/homeOrg/content/pdf/11b-3455%20AP%20District%20Achieve%20FINAL%20WEB-PDF%203-11-11.pdf>

<sup>74</sup> "NISD sees explosive growth in Advanced Placement enrollment," Op cit.

<sup>75</sup> Ibid.

curricula has also been an effective practice for encouraging enrollment and preparing students for success in AP courses.

Northside ISD also places significant **emphasis on training and professional development for pre-AP and AP teachers**. In addition to specific training opportunities, AP teachers participate in AP Professional Learning Communities with other AP teachers in their school, allowing them to share best practices and learn from effective strategies used by their colleagues. Notably, non-AP teachers are trained to identify potential AP students who will be encouraged to participate in the AP program.

### *STUDENT SUPPORT*

The district runs AP Boot Camps for freshmen and first-time AP students in order to help them develop the necessary skills for success in AP courses. Another important component of pre-AP preparation consists of establishing lines of communication between students and AP teachers before courses begin. During the summer before an AP course, students have the opportunity to communicate with their teachers, through online chats, on a range of topics, such as summer reading and other preparation materials.

AP Biology students at Northside ISD have received additional support through programs funded by College Board grants. The grant focuses on developing new assessment tools for providing educators with feedback on students and recommending instructional materials for specific areas of need.<sup>76</sup> In partnership with College Board experts, AP Biology teachers identified 10 “challenge areas” of the course and strategies to inform students of their progress throughout the course. These ideas were then taken into consideration when developing new professional development for AP teachers. Formative, online assessments allow teachers to receive immediate feedback on student progress, allowing teachers to improve instructional strategies to meet student needs. Based on the success witnessed in the AP Biology course, Northside ISD plans to undertake this process in other AP courses, including Calculus and U.S. History.<sup>77</sup>

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<sup>76</sup> Lloyd, Jennifer R. “Northside ISD gets slice of \$3 million grant.” My San Antonio. Jan. 6, 2012.

<http://www.mysanantonio.com/news/education/article/Northside-ISD-gets-slice-of-3-million-grant-2446925.php>

<sup>77</sup> Superintendent John Folks. “Monday Message: October 10, 2011.” Northside Independent School District. <http://www.nisd.net/superintendent/mondayMessage/284/>

## APPENDIX: AP SCORE DISTRIBUTIONS

The tables in this appendix display AP exam participation and performance data. Hanover includes this data to provide benchmarks for national performance averages, both in aggregate and disaggregated by ethnicity (African-American, Hispanic, White).

**Figure A1: AP National Score Distributions Over Time, Aggregate**

Score	NUMBER/PERCENTAGE OF EXAMS FOR EACH GRADUATING CLASS							
	2003		2008		2012		2013	
	#	%	#	%	#	%	#	%
<b>One</b>	196,480	14.8	438,064	20.2	637,342	21.8	652,397	20.7
<b>Two</b>	325,140	24.5	486,087	22.4	624,500	21.4	693,591	22.0
<b>Three</b>	358,557	27.0	533,078	24.6	682,470	23.4	755,189	24.0
<b>Four</b>	268,912	20.2	416,232	19.2	560,005	19.2	615,027	19.5
<b>Five</b>	179,422	13.5	291,841	13.5	415,006	14.2	436,810	13.9

Source: College Board<sup>78</sup>

**Figure A2: AP National Score Distributions Over Time, Black/African American Graduates**

Score	NUMBER/PERCENTAGE OF EXAMS FOR EACH GRADUATING CLASS							
	2003		2008		2012		2013	
	#	%	#	%	#	%	#	%
<b>One</b>	23,715	37.3	63,214	47.4	104,646	48.0	105,795	45.3
<b>Two</b>	20,478	32.2	36,234	27.1	54,745	25.1	61,429	26.3
<b>Three</b>	11,952	18.8	20,581	15.4	33,938	15.6	38,132	16.3
<b>Four</b>	5,428	8.5	9,642	7.2	17,489	8.0	20,208	8.6
<b>Five</b>	2,052	3.2	3,790	2.8	7,085	3.3	8,067	3.5

Source: College Board<sup>79</sup>

**Figure A3: AP National Score Distributions Over Time, Hispanic/Latino Graduates**

Score	NUMBER/PERCENTAGE OF EXAMS FOR EACH GRADUATING CLASS							
	2003		2008		2012		2013	
	#	%	#	%	#	%	#	%
<b>One</b>	37,086	26.2	94,972	33.6	163,181	34.9	179,844	33.5
<b>Two</b>	34,169	24.2	68,808	24.4	113,037	24.4	135,610	25.3
<b>Three</b>	27,115	19.2	53,938	19.1	87,742	19.1	104,325	19.4
<b>Four</b>	21,138	15.0	38,562	13.6	62,398	13.6	72,097	13.4
<b>Five</b>	21,808	15.4	26,238	9.3	40,557	9.3	45,117	8.4

Source: College Board<sup>80</sup>

<sup>78</sup> "Appendix B: National Score Distributions Over Time-U.S. Public Schools," *10th Annual AP Report to the Nation*, College Board. <http://media.collegeboard.com/digitalServices/pdf/ap/rtn/10th-annual/10th-annual-ap-report-appendix-b.pdf>

<sup>79</sup> Ibid.

<sup>80</sup> Ibid.

**Figure A4: AP National Score Distributions Over Time, White Graduates**

Score	NUMBER/PERCENTAGE OF EXAMS FOR EACH GRADUATING CLASS							
	2003		2008		2012		2013	
	#	%	#	%	#	%	#	%
<b>One</b>	97,818	11.3	201,087	15.3	264,591	16.0	262,276	14.9
<b>Two</b>	210,304	24.4	291,066	22.2	346,794	21.0	376,662	21.4
<b>Three</b>	251,601	29.2	354,830	27.1	429,942	26.0	469,191	26.6
<b>Four</b>	188,233	21.8	278,902	21.3	359,678	21.7	390,045	22.1
<b>Five</b>	115,048	13.3	185,150	14.1	253,039	15.3	262,908	14.9

Source: College Board<sup>81</sup><sup>81</sup> Ibid.



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