In the following report, Hanover Research summarizes the empirical research on school-based strategies for closing the achievement gap, specifically in terms of core subject achievement, participation in advanced coursework, college readiness, behavior and suspension rates, and on-time graduation. The empirical analysis is supplemented with recommendations from secondary sources where applicable.
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<tr>
<td>SUMMARY OF RESEARCH</td>
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EXECUTIVE SUMMARY AND KEY FINDINGS

INTRODUCTION

Across the United States, achievement and opportunity gaps persist between students of different racial, ethnic, linguistic, ability, and socioeconomic groups. While many schools seek to reduce achievement gaps and increase equitable outcomes for students, eliminating these gaps is a complex process and requires the support of multiple stakeholders, a variety of long-term interventions, and policy changes.

At the request of a public school district, Hanover Research (Hanover) summarizes the empirical research on school-based strategies for narrowing achievement gaps, specifically in terms of core subject achievement, participation in advanced coursework, college readiness, behavior and suspension rates, and on-time graduation. Empirical studies were identified using EbscoHost, ProQuest, and ERIC databases and range in their use of qualitative and quantitative approaches. Effect sizes of specific school-based practices for reducing gaps in achievement are noted where applicable. Findings from these empirical analyses are supplemented with recommendations from reputable national organizations. In total, results from Hanover’s review of research are organized in the following six sections:

- **Section I: Overview of Strategies** reviews general research-based strategies for narrowing achievement gaps. This broad overview serves as a foundation for understanding how more specific gaps in student academic and behavioral outcomes may be addressed, as explored in greater detail in subsequent sections.

- **Sections II through VI** summarize key empirical research on efforts to close the achievement gap in:
  - Core subject achievement, focusing on mathematics and reading;
  - Participation in advanced coursework, including participation in Gifted and Talented programs and Advanced Placement (AP) classes;
  - College readiness, focusing on participation and success on standardized achievement tests such as the SAT and ACT, and college enrollment;
  - Behavior and suspension, focusing on strategies for improving student behavior and reducing discipline referrals; and
  - On-time graduation.
KEY FINDINGS

- Reducing achievement gaps requires coordination among administrators, teachers, parents, and students. Achievement gaps are created and resolved by a combination of both in-school and out-of-school factors, some of which schools cannot control. Interventions may be universal, or may be best suited to a particular level, student group, or need.

- Schools with the least disparity promote school cultures of high expectations and strong teacher-student relationships. High expectations increase students’ sense of self-efficacy and motivation, which improves achievement, aspirations, and behavior. In addition to having high expectations, achievement gap outcomes are improved by quality teacher-student relationships where students perceive their teachers as supportive, caring, sensitive and responsive to their needs, and respectful of their cultural or linguistic differences.

- Cultural competency training provides a foundation for engaging diverse cultural and linguistic experiences in the classroom and school. Cultural competency training encourages teachers to value diversity, be culturally self-aware, understand the dynamics of cultural interactions, and incorporate cultural knowledge into their teaching. As one study indicates, English language learners (ELLs) have higher academic achievement when taught by teachers who have received professional development on cultural and instructional strategies for teaching ELLs. While teachers should be culturally competent, administrators should also work to ensure a school culture that respects cultural differences.

- Family involvement in students’ education reduces achievement gaps and is positively associated with higher student achievement, better attendance and behavior, and increased graduation and college enrollment rates. Family involvement is more effective when it is explicitly linked to student learning and targets specific skills. Schools can increase family engagement by conducting outreach and communication with families and fostering trusting, collaborative relationships that are respectful of differences.

- Elementary school teachers should focus on improving reading and math proficiency before students leave Grade 3 to reduce later gaps. Research indicates that proficiency by Grade 3 is highly predictive of later academic achievement and graduation rates. Effective classroom-based practices for improving the math and reading proficiency of at-risk students include differentiated instruction, explicit instruction, and one-on-one tutoring.

- A variety of challenges can be mitigated by setting the expectation that all students can and will attend college. As early as Kindergarten, schools and teachers should talk to students about college and have them visit college campuses. Providing resources and exposure to colleges and the college application process early in students’ high school career provides students with the tools and information to prepare for, apply for, and go to college.
SECTION I: OVERVIEW OF STRATEGIES

This section reviews general research-based strategies for narrowing the achievement gap, serving as a foundation for understanding how to address more specific gaps in achievement and behavioral outcomes presented in subsequent sections.

DEFINING ACHIEVEMENT GAPS

Achievement gaps are defined as “the differences in academic performance between groups of students of different backgrounds.” Groups experiencing achievement gaps include racial and ethnic minorities, English language learners, students with disabilities, and students from low-income families. Achievement gaps exist along a variety of measures, including:

- Performance on tests (e.g., statewide tests, SATs, etc.);
- Access to key opportunities (e.g., advanced mathematics, physics, higher education, etc.); and
- Attainment (e.g., high school diploma, college degree, employment).

Although gaps in achievement measure inequalities in educational outcomes, many argue that achievement gaps proxy for opportunity gaps, or gaps in the availability of opportunities, resources, and experiences that contribute to a student’s school success. Describing the gap as an “opportunity gap” rather than an “achievement gap” shifts the focus to the factors that lead to unequal achievement, which often include factors out of students’ control. As a 2016 report by the Harvard Kennedy School describes, the “fates” of children of different racial and ethnic, linguistic, ability, and socioeconomic groups are “increasingly and unfairly tied to their ‘choice’ of parents and the zip code in which they are born.” While there are many factors that contribute to opportunity gaps that schools cannot influence, such as a student’s race, family socioeconomic status, or access to a safe and healthy environment in a neighborhood or community, there are many ways that schools can intervene to help reduce gaps in opportunity and achievement.

STRATEGIES FOR CLOSING ACHIEVEMENT GAPS

The National Education Association (NEA) conducts ongoing research on the state of achievement gaps and the best strategies for closing these gaps. Figure 1.1 on the next page presents effective strategies for closing achievement gaps at multiple stakeholder levels. Notably, these strategies address the achievement gap from a holistic perspective and focus

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3 Bullet points quoted verbatim from: Ibid.
on identifying early factors that contribute to student success. In total, the NEA lists nine comprehensive strategies for closing gaps in achievement, each composed of several core practices for providing students with greater support and access to learning resources and services.

**Figure 1.1: Strategies for Closing Achievement Gaps**

<table>
<thead>
<tr>
<th>STRATEGY</th>
<th>PRACTICES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Enhanced Cultural Competence</strong></td>
<td>• Consider students’ diversity to be an asset;</td>
</tr>
<tr>
<td></td>
<td>• Increase faculty’s cultural competence;</td>
</tr>
<tr>
<td></td>
<td>• Be sensitive to students’ home cultures; and</td>
</tr>
<tr>
<td></td>
<td>• Understand and capitalize on students’ culture, abilities, resilience, and effort.</td>
</tr>
<tr>
<td><strong>Comprehensive Support for Students</strong></td>
<td>• Screen children early for medical/social services;</td>
</tr>
<tr>
<td></td>
<td>• Work with medical, social services, and community agencies;</td>
</tr>
<tr>
<td></td>
<td>• Identify students who need additional instructional support; and</td>
</tr>
<tr>
<td></td>
<td>• Support students via mentors, tutoring, peer support networks, and role models.</td>
</tr>
<tr>
<td><strong>Outreach to Students’ Families</strong></td>
<td>• Make sure the main office is family friendly;</td>
</tr>
<tr>
<td></td>
<td>• Engage/reach out to students' families;</td>
</tr>
<tr>
<td></td>
<td>• Establish family centers at schools and other community locations;</td>
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<tr>
<td></td>
<td>• Hire staff from the community who speak families’ home languages;</td>
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<tr>
<td></td>
<td>• Provide transportation to and from school events; and</td>
</tr>
<tr>
<td></td>
<td>• Conduct adult education and parenting courses at local schools.</td>
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<tr>
<td><strong>Extended Learning Opportunities</strong></td>
<td>• Institute full day kindergarten and pre-kindergarten; and</td>
</tr>
<tr>
<td></td>
<td>• Extend learning to before- and after-school programs as well as summer programs.</td>
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<tr>
<td><strong>Classrooms that Support Learning</strong></td>
<td>• Use varied, effective strategies to instruct diverse learners;</td>
</tr>
<tr>
<td></td>
<td>• Use test and other information on students’ performance in instructional planning;</td>
</tr>
<tr>
<td></td>
<td>• Target literacy and math instruction, if needed;</td>
</tr>
<tr>
<td></td>
<td>• Safeguard instructional time; and</td>
</tr>
<tr>
<td></td>
<td>• Use research and data to improve practice.</td>
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<tr>
<td><strong>Supportive Schools</strong></td>
<td>• Make closing gaps a schoolwide responsibility;</td>
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<tr>
<td></td>
<td>• Set high expectations and provide rigorous, deep curricula;</td>
</tr>
<tr>
<td></td>
<td>• Focus on academics;</td>
</tr>
<tr>
<td></td>
<td>• Provide safe, orderly learning environments for students and educators;</td>
</tr>
<tr>
<td></td>
<td>• Use test data and other research on students' performance to inform instruction;</td>
</tr>
<tr>
<td></td>
<td>• Identify strategies and programs to increase achievement;</td>
</tr>
<tr>
<td></td>
<td>• Develop effective schoolwide leadership teams; and</td>
</tr>
<tr>
<td></td>
<td>• Provide ongoing professional development for school-based leaders on effective strategies for closing the achievement gaps.</td>
</tr>
<tr>
<td>STRATEGY</td>
<td>PRACTICES</td>
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<tr>
<td>------------------------</td>
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</tbody>
</table>
| Strong District Support | - Make closing achievement gaps a district priority;  
                          - Develop an effective leadership team;  
                          - Provide additional resources and support for students experiencing achievement gaps;  
                          - Engage teachers in strengthening curriculum and student assessments;  
                          - Decrease class sizes;  
                          - Provide schools with timely test and other assessment information;  
                          - Involve teachers in the design of ongoing professional development; and  
                          - Disseminate the latest research on effective strategies to schools. |
| Access to Qualified Staff | - Improve teacher education programs;  
                          - Recruit, develop, and retain qualified teachers and para-educators;  
                          - Attract high quality staff to work with students with the greatest needs;  
                          - Compensate teachers who take on extra responsibilities;  
                          - Provide time for faculty to meet and plan;  
                          - Provide continuous, data-driven professional development;  
                          - Prepare teacher leaders to be knowledgeable and effective on school reform; and  
                          - Help teachers work effectively with families and communities. |
| Adequate Resources and Funding | - Seek adequate and equitable funding;  
                          - Target resources on closing the gaps;  
                          - Expand school capacity via additional resources;  
                          - Engage businesses, universities, foundations in schools' work;  
                          - Seek federal, state, or private funding in collaboration with partners to leverage NEA programs; and  
                          - Schools that close achievement gaps focus on improving learning for all students, maintain a "no excuses" attitude, use research and data to improve practice, involve everyone in improvement processes, persist through difficulties and setbacks, and celebrate accomplishments. |

Source: National Education Association

While these key strategies help to reduce gaps in achievement, an article published in *Phi Delta Kappan* notes that *how* they are implemented contributes to their success. For instance, **interventions that combine multiple strategies and start early through prevention are most effective.** Other factors include:  

- A combination of strategies is required to address achievement and opportunity gaps;  
- Interventions should disproportionately advantage students on the wrong side of the achievement gap;  
- An integrated, cohesive design that thoughtfully combines multiple efforts is more advantageous than scattered, ad hoc efforts;  
- The cohesive design needs to include both out-of-school factors, such as summer programs, and in-school variables, such as a more rigorous curriculum;  
- Some factors carry more weight in certain periods of a student’s career (for example, small class size is more valuable in the early grades);  
- Prevention is always better than remediation;  
- Interventions should vary by the setting;  
- There are no short term solutions and benefits escalate with intervention duration; and  
- Supports should not be withdrawn even when gaps are reduced; continued work is required to maintain gains.

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http://best.brevardschools.org/ClosingTheGap/Shared%20Documents/Research/Closing%20the%20Achievement%20Gap%20-%20Lessons%20from%20the%20last%2015%20years.pdf
**SECTION SPOTLIGHT: SPRINGFIELD PUBLIC SCHOOLS**

In 2010, the NEA awarded Springfield Public Schools (SPS), in collaboration with the Springfield Education Association (SEA) and community organizations, $1.25 million dollars in grants as part of their “Closing the Achievement Gaps Initiative.” SPS has 25,729 students, of whom 61 percent are Hispanic and 20 percent are Black, as well as a student poverty rate of 87 percent. As a result of their efforts to reduce achievement gaps at certain schools, SPS saw an increase in their students’ math, English, and science proficiency. Also, students at these schools had decreased rates of absenteeism and suspensions.9

The main strategies, implemented in five of the district’s elementary schools increase instructional effectiveness through:10

- Deep collaboration between union, district, and community stakeholders;
- Embedded professional development for teachers;
- Professional Learning Communities (PLCs) and data-driven team meetings;
- Parent-teacher home visits; and
- Expanded learning (via summer program) for students and teachers.

A key focus of SPS’ approach is family engagement; in addition to regular communication through phone calls and letters, teachers also make visits to students’ homes, one per every six students in the treatment schools. These visits allow teachers to connect with parents, and in some cases share actionable ways parents can be more involved in their child’s education.11 The grant also allowed SPS to invest in teacher support, including professional development, professional learning communities, and embedded peer coaching.12

From the standpoint of different stakeholders, Figure 1.2 provides specific actions to reduce achievement gaps. For example, administrators can provide teachers with professional development and learning opportunities; teachers can modify instruction as needed and set high expectations; students can take responsibility for their own efforts and behavior; and families can be supportive of and involved in their child’s education.

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10 Bullet points quoted verbatim from: Ibid.


## Figure 1.2: Stakeholder Actions for Closing Achievement Gaps

**District and School Leaders**
- Create a professional learning community to programs that will close achievement gaps;
- Support teaching and learning through consistent priorities and actions; and
- Share responsibility for improving district and school operations.

**Teachers**
- Use effective instructional strategies;
- Maintain high standards for all students by providing a rigorous curriculum;
- Understand and capitalize on students' diverse cultures;
- Examine their expectations, beliefs, and practices through the equity lens;
- Serve as "first responders" in identifying students who need additional instructional support; and
- Participate in professional development programs that provide them with strategies for working with students and their families who are not achieving success.

**Education Support Professionals**
- Serve as links to families and the community;
- Provide instructional support to students; and
- Serve as mentors for students.

**Students**
- Take personal responsibility for their learning;
- Engage with teacher(s), classmates, and others in the school and community; and
- Participate, as needed, in supplemental learning programs and opportunities.

**Families**
- Provide a home environment that supports learning;
- Share schools' and teachers' high expectations for students;
- Communicate with teachers and other school personnel; and
- Participate in school decision-making.

Source: National Education Association

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CRITICAL ENVIRONMENTS FOR NARROWING ACHIEVEMENT GAPS

Prior to reviewing key school-based strategies for narrowing various academic and behavioral achievement gaps, Hanover first highlights research on family involvement and school culture. Taken together, research indicates that both environments need to be addressed in order for schools to narrow existing achievement gaps.

FAMILY INVOLVEMENT

Research indicates that family involvement is positively associated with improving multiple achievement gap outcomes. As discussed in further detail in later sections, for example, involving families in a student’s education contributes to higher student achievement, better attendance and behavior, and increased graduation and college enrollment rates.

The Southwest Educational Development Laboratory (SEDL), a nonprofit education research organization and an affiliate of American Institutes of Research (AIR), conducted a meta-analysis of 51 empirical studies on the effect of parent, family, and community involvement on student outcomes. In SEDL’s report, A New Wave of Evidence: The Impact of School, Family, and Community Connections on Student Achievement, researchers Henderson and Mapp found that schools who successfully engage families from diverse backgrounds — in terms of income, race/ethnicity, educational level, and occupation — share the following characteristics:

- Focus on building trusting collaborative relationships among teachers, families, and community members;
- Recognize, respect, and address families’ needs, as well as class and cultural difference; and
- Embrace a philosophy of partnership where power and responsibility are shared.

When minority, ELL, and special education students perceive their teachers as supportive, caring, sensitive and responsive to their needs, and respectful of their cultural or linguistic differences, they are more likely to have high academic achievement, graduate on-time, succeed in advanced courses, and have positive behavior. However, the cultural gap between teachers and students often hinders a supportive and respectful student-teacher relationship. Thus, professional development and continuing professional learning communities can help teachers develop cultural competence and strategies for teaching culturally diverse students.

For example, a study shows that when teachers received professional development on cultural and instructional strategies for teaching ELLs, their ELL students’ academic achievement increased. 19

The NEA defines cultural competence in education as “skills and knowledge to effectively serve students from diverse cultures.” 20 The four skills of cultural competence are described below, and apply to the entire school environment as well as teachers: 21

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15 “About Amistad Academy Middle School.” Achievement First. http://www.achievementfirst.org/schools/connecticut-schools/amistad-academy-middle-school/about/


21 Bullet points quoted verbatim from: Ibid.
- **Valuing diversity**: Accepting and respecting different cultural backgrounds and customs, different ways of communicating, and different traditions and values;

- **Being culturally self-aware**: Understanding that educators’ own cultures—all of their experiences, background, knowledge, skills, beliefs, values, and interests—shape their sense of who they are, where they fit into their family, school, community, and society, and how they interact with students;

- **Understanding the dynamics of cultural interactions**: Knowing that there are many factors that can affect interactions across cultures, including historical cultural experiences and relationships between cultures in a local community;

- **Institutionalizing cultural knowledge and adapting to diversity**: Designing educational services based on an understanding of students’ cultures and institutionalizing that knowledge so that educators, and the learning environments they work in, can adapt to and better serve diverse populations.

Relatedly, multiple studies highlight the importance of setting high expectations for participation and success in gifted and talented programs and AP classes, student behavior, college readiness, and on-time graduation, each of which can lead to decreases in achievement gaps. As Gregory et al. explain, “teachers’ expectations for student success are linked to the development of students’ academic self-concept and achievement over time.”

At the school level, administrators and staff should cultivate a school climate with high expectations for all students, combined with support and encouragement to motivate students to meet such expectations. In the classroom, teachers should hold high expectations for students, challenge them to do their best, and provide them with appropriately challenging assignments.

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SECTION SPOTLIGHT: ORANGE COUNTY PUBLIC SCHOOLS

In 2014, Orange County Public Schools (OCPS) in Florida was awarded the Broad Prize in Urban Education, which is awarded annually to a public school that has “demonstrated the greatest overall performance and improvement in student achievement while narrowing achievement gaps among low-income students and students of color.” At the time, OCPS served 184 schools with 187,193 students (36 percent Hispanic, 30 percent white, 27 percent black, five percent Asian; 60 percent eligible for free or reduced-price lunch; and 13 percent ELL). They won the highly regarded prize for reducing their ethnic and income achievement gaps: OCPS is in the top fifth of Florida districts whose black students are at the highest achievement levels in science and reading, and OCPS narrowed achievement gaps between white and Hispanic students in elementary, middle and high school science and reading and in elementary and high school math. In addition, OCPS increased the AP participation of Hispanic students by seven percentage points and the passing rate by three percentage points.

At OCPS, all students are expected to pursue a college-prep curriculum, and students are strongly encouraged to take advanced coursework. School staff encourage students who perform well on the PSAT to take AP classes. Further, OCPS teachers and staff have access to student achievement, attendance, disciplinary, and demographic data which informs school and classroom decision making. Using a variety of formative and summative measures, teachers constantly collect and assess student data to know when to differentiate instruction or what to reteach, which “gives teachers a down-to-the-minute sense of whether their students understand a lesson.” Using student data helps teachers determine whether students are on a path towards advanced coursework or if they need intervention.

Furthermore, professional development is a cornerstone of OCPS’ approach to closing the achievement gap, as OCPS provides “tailored professional development and a network of mentors and coaches.” OCPS individualizes professional development using results and feedback from observations and evaluations so that each teacher receives training that addresses their specific needs and challenges. Moreover, teachers have access to support from teacher leaders and specialized coaches. While they are provided with multiple supports, teachers are also regularly evaluated and are expected to “center instruction on high expectations for student achievement” and “demonstrate effective teacher practices.” School leadership emphasizes rigor in classroom instruction and ensures that teachers have the necessary supports and tools to implement a rigorous curriculum.

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24 Ibid., p. 3.
25 Ibid., p. 4.
26 Ibid.
27 Ibid.
28 Ibid., p. 5.
SECTION II: CORE SUBJECT ACHIEVEMENT

This section summarizes key empirical research on the efforts to narrow the achievement gap in core subject areas, focusing on mathematics and reading. An overview of key findings from this review is presented first, followed by a more in-depth synthesis of the research. The section includes a table that records individual studies, their samples and methods, and their main conclusions.

OVERVIEW OF FINDINGS

- Research suggests that direct, explicit instruction effectively improves the math and reading achievement of struggling students, including those with special needs or who are English language learners.
  - While phonics, vocabulary, and fluency instruction are more effective in the early primary grades, classroom-based methods to improve proficiency above Grade 3 focus on teaching reading comprehension strategies such as inferencing, questioning, and visualizing.
  - Systematic and explicit math instruction is especially beneficial for students who struggle with math, including students with disabilities. Explicit math instruction includes providing students with clear models, time for practice, and extensive feedback.

- Many studies find that tutoring, especially when administered one-to-one, is an effective method for improving at-risk students’ (including those who are struggling, minority, ELL, or special education students) proficiency in core subject areas including reading and math. For instance, one-on-one tutoring is more effective than small group tutoring, especially when provided by teachers (rather than paraprofessionals or volunteers) in phonics.

- ELLs benefit from explicit vocabulary instruction, both in English Language Arts and mathematics. Research suggests that teaching cognitive strategies to ELLs helps improve academic success. In math, vocabulary development helps with word-problem solving. As one study showed, when ELLs received additional sessions where word-problems were scaffolded to their language abilities, their word-problem solving proficiency steadily improved.

- Students benefit when teachers are sensitive and responsive, as well as aware of students’ unique learning needs. Research illustrates that professional development focusing on instructing students from diverse linguistic and cultural backgrounds can improve the achievement of ELLs. For example, one study found that when teachers participated in professional development that was focused on improving their cultural and instructional understanding of teaching ELLs, their students made statistically significant achievement gains on state tests in both math and reading.

- At-home learning environments that include direct homework involvement, resources such as books and other learning tools, and high parental expectations
help reduce achievement gaps in both math and reading. Research suggests that schools can increase achievement levels by encouraging more direct parental involvement, and schools should encourage parents, even if they have limited resources or limited content-area knowledge, to be involved by providing a structured environment and engaging in discussions for homework completion.

SUMMARY OF RESEARCH

Figure 2.1 on the following page presents a summary table of 11 empirical studies that examine strategies for reducing the math and reading achievement gaps. All studies were published between 2007 and 2015, and five were published in the past five years. The effect sizes (ES) for the interventions’ outcomes are provided where possible. Of the 11 studies, eight examined strategies for elementary level students, two examined strategies for middle school students, and one was targeted for middle and high schools. All of the studies target students struggling with reading or math, and in a majority of the studies, the sample population is racially or ethnically diverse, includes students who are eligible for free or reduced-price lunch (FRPL), and/or has a large percentage of ELLs.
Figure 2.1: Empirical Studies of Strategies for Reducing the Reading and Math Achievement Gap

<table>
<thead>
<tr>
<th>STUDY</th>
<th>SAMPLE</th>
<th>METHOD</th>
<th>KEY OUTCOMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Galindo and Sonnenschein (2015)&lt;sup&gt;29&lt;/sup&gt;</td>
<td>▪ 19,650 students from the Early Childhood Longitudinal Study (ECLS-K) Kindergarten Class of 1998–99</td>
<td>▪ Examined effect of beginning kindergarten math proficiency on the SES math achievement gap, as well as aspects of the home environment on the relationship between SES and math proficiency.</td>
<td>▪ Children “with greater access to learning tools (0.05 SD), reading activities (0.03 SD), and whose parents reported higher levels of parental involvement in school (0.02 SD) and higher current/future educational expectations (0.03 SD, respectively) obtained higher math scores in the spring of kindergarten” but that initial math proficiency in the beginning of kindergarten can mediate this relationship.</td>
</tr>
<tr>
<td>Martin and Rimm-Kaufman (2015)&lt;sup&gt;30&lt;/sup&gt;</td>
<td>▪ 387 Grade 5 students ▪ 53% female; 11% white, 31% Hispanic, 17% Asian, 6% black ▪ 22% FRPL; 37% ELL</td>
<td>▪ Assessed how students’ feelings of math self-efficacy affected their emotional and social engagement in math class, and whether this relationship was mediated by quality student-teacher interactions.</td>
<td>▪ In classrooms with sensitive, responsive interactions among teachers and students, students had similar levels of emotional and social engagement regardless of self-efficacy.</td>
</tr>
<tr>
<td>O’Sullivan et al. (2014)&lt;sup&gt;31&lt;/sup&gt;</td>
<td>▪ 79 Grade 7 and 8 students ▪ 56% Hispanic and 38% Asian ▪ 100% FRPL ▪ 33% male</td>
<td>▪ Examined effect of parental self-efficacy and three methods of parental homework support (i.e. provision of structure, direct assistance, and autonomy support) on student math achievement.</td>
<td>▪ The majority of low-SES parents place emphasis on providing homework structure. ▪ Only parental provision of homework structure was a significant factor in predicting students’ math grades (β = .22, p = .047).</td>
</tr>
</tbody>
</table>

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<sup>31</sup> O’Sullivan, Chen, and Fish, Op. cit.
### Study Sample Method Key Outcomes

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample</th>
<th>Method</th>
<th>Key Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Orosco (2014)</td>
<td>Six Grade 3 Spanish-speaking ELLs with low math abilities</td>
<td>Intervention consisted of word-problem solving strategy called Dynamic Strategic Math (DSM). Tester modified word-problem solving via a four-level vocabulary modification procedure to the students' level of word-problem-solving cognition, and then provided intervention with probes that assessed students' word-problem-solving ability. This study was conducted as a pullout program for 17 sessions (average 20–25 min per session) over a five-week period and was a supplementary intervention to the general education math curriculum students received (50 min/day).</td>
<td>Results showed positive gains for students on solving word-problems after the intervention.</td>
</tr>
<tr>
<td>Matsumura et al. (2013)</td>
<td>2983 students in Grades 4-5 at 29 elementary schools 79% Hispanic, 16% black; 91% FRPL</td>
<td>Schools in treatment group received a content-focused coaching (CFC) literacy coach. Intervention was longitudinal over three years and group-randomized.</td>
<td>CFC had significant, positive effects on reading achievement for both non-ELL students (ES=.18) and ELLs (ES=.46). CFC had a positive impact on teacher text discussion quality (ES=.63).</td>
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</tbody>
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<table>
<thead>
<tr>
<th>STUDY</th>
<th>SAMPLE</th>
<th>METHOD</th>
<th>KEY OUTCOMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friend et al. (2009)34</td>
<td>- Two urban middle schools with high percentages of ELLs               - 96% FRPL, 96% Hispanic - 53.7% male, 46.3% female</td>
<td>- Teachers participated in professional development classes, one each year over two years, on better instructing ELLs in content areas.</td>
<td>- ELL students whose teacher participated in the professional development intervention had statistically significant increases in math and reading achievement on the Kansas state assessment.</td>
</tr>
</tbody>
</table>
| Fuchs et al. (2008)35 | - 119 Grade 3 classrooms of 243 at-risk students in a southwest metropolitan district - Occurred over a four-year period of four student cohorts - 49% male; 54.9% FRPL; 42.1% African American, 40.7% white, 10.5% Hispanic; 3.2% ELL | - At-risk students were randomly assigned to either the control group or to receive Hot Math schema-based broadening instruction (SBI) small-group tutoring with and without SBI classroom instruction. | - Tutored students with SBI classroom instruction performed better than those without (ES=1.34)  
- The ES between tutored students and control students who received conventional classroom instruction was 1.18 and the ES between tutored students and control students receiving SBI instruction was 1.13, which suggests that the two preventative measures are "additive, not synergistic." |

<table>
<thead>
<tr>
<th>STUDY</th>
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<th>METHOD</th>
<th>KEY OUTCOMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proctor et al.</td>
<td>30 Grade 4 students; 53% Spanish-speaking ELLs; 11 boys and 19 girls</td>
<td>Students used a multimedia digital reading environment tool that had eight hypertexts with embedded supports targeting depth and breadth of vocabulary development and cognitive and metacognitive strategy development. Students spent 45 minutes, three times per week, for 4 weeks, totaling 12 sessions, in a computer lab participating in the intervention.</td>
<td>The ELL students used the vocabulary strategies more often than their non-ELL peers, although not significantly. Results showed no significant growth from pre- to post testing for vocabulary and comprehension, but there was a significant difference between ELL and non-ELL students. Students who performed well on the reading vocabulary and comprehension tests were more likely to access the reading supports.</td>
</tr>
<tr>
<td>Ehri et al. (2007)</td>
<td>64 low-SES language-minority Grade 1 students with reading difficulties; 95% FRPL</td>
<td>Reading Recovery one-to-one tutoring program. Tutors included certified reading specialists with graduate degrees, adults certified in other areas (guidance counseling, math, and social work), and paraprofessionals.</td>
<td>Tutoring had significant and positive effects on reading achievement for the treatment group as compared to the control group, based on multiple assessment measures. For example, tutored students outperformed control students in writing lowercase letters, segmenting and blending phonemes, reading sight words and pseudo words, generating plausible spellings of words, and reading and comprehending text. Small group tutoring was nonsignificant and ineffective. Effect sizes ranged from moderate to high: for word and text reading ES ranged from .61 to 1.09.</td>
</tr>
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<table>
<thead>
<tr>
<th>Study</th>
<th>Sample</th>
<th>Method</th>
<th>Key Outcomes</th>
</tr>
</thead>
</table>
| Olson and Land (2007)³⁸       | - 94 teachers and approximately 2,000 students per year participated in the intervention over eight years  
- Nine middle and four high schools in Santa Ana Unified School District  
- 90% were Hispanic, low-SES, ELLs                                   | - In the intervention, designated the Pathway Project, teachers received intensive professional development over eight years on a cognitive strategies approach to reading/writing for ELLs that emphasized declarative, procedural, and conditional knowledge of and practice with cognitive strategies.  
- Intervention included explicit strategies instruction, and progressively rigorous expectations. | - Results showed a statistically significant positive difference between pre-/post-test scores for intervention and control students for all intervention years.  
- The average standardized mean differences in gain scores between treatment and control groups was 40 standard deviations. The average effect size for the seven study years was .34, ranging as high as .64.  
- Intervention students also scored significantly higher on the California High School Exit Exam, and outperformed control students on variables of GPA, absences, SAT-9 Reading and Total Language scores, and fluency. |
| Nelson and Stage (2007)³⁹     | - 283 Grade 3 and 5 students  
- 32% FRPL                                                                | - Classes in the treatment group received contextually based multiple meaning vocabulary instruction, which was embedded in the standard language arts instruction.  
- Classes in the control group received the standard language arts instruction alone. | - Students with low initial vocabulary and comprehension achievement in the experimental group showed improvements in their vocabulary skills relative to students in the non-specific treatment group. There was notable change for students who were initially high-achieving.  
- ES vocabulary for low to average initial achievement = .18, for high initial achievement = -.06  
- ES comprehension for average to high achievement = .23, for low achievement = .53       |
Research indicates there are a variety of approaches to improving reading achievement. The U.S. Department of Education’s Institute of Education Sciences (IES), for instance, synthesized empirical research studies with strong evidence on the types of interventions that improve reading outcomes for students with reading disabilities and found that:

- Increasing the intensity of interventions in kindergarten and Grade 1 can prevent reading difficulties for many students;
- Fluency interventions that focus on repeated reading of text, opportunities to practice reading in the classroom, and reading a range of texts can generally improve students’ fluency and comprehension;
- Language outcomes for many preschool children at risk for language disabilities can improve if they are provided extensive opportunities to hear and use complex oral language;
- Peer-assisted or cooperative learning is a promising method to increase the intensity of instruction for students and improving their reading outcomes; and
- Interventions that are differentiated to target an individual student’s profile of component skills are effective in improving students’ reading development.

Similarly, the Best Evidence Encyclopedia (BEE), a web-based resource funded by the U.S. Department of Education, reviews and rates research on educational interventions. When reviewing empirical research studies on reading interventions for students with reading disabilities and struggling readers in elementary school, the BEE identified 96 studies that evaluated reading interventions that met their strict inclusion criteria. The researchers divided the intervention programs into six models, presented in Figure 2.2 on the following page, along with example programs that showed effects for low achievers. From their synthesis of empirical studies, the researchers found that one-on-one tutoring programs are highly effective and more effective than small group tutoring, especially when provided by teachers (rather than paraprofessionals or volunteers) in phonics. This finding that tutoring is extremely effective at improving achievement of struggling students also applies to math achievement and is corroborated by Ehri et al.’s and Fuchs et al.’s studies presented in Figure 2.1. On the other hand, their synthesis revealed that computer-assisted instructional programs are less effective.

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Many teachers and administrators express an interest in effective strategies to increase the reading and writing proficiency of English language learners. Olson and Land conducted an eight-year longitudinal study of the effect of a cognitive strategy intervention approach on ELLs’ academic achievement and found that the intervention significantly improved the reading and writing achievement levels of students at a low-income California school district, as evidenced by improved outcomes on teacher assessments, state standardized assessments, GPAs, and improved attendance. With this approach, teachers provided explicit and systematic instruction to “help students develop declarative, procedural, and conditional knowledge of the cognitive strategies.”

Cognitive strategies that helped ELLs improve their reading and writing abilities included:

- Planning and goal setting;
- Tapping prior knowledge;
- Asking questions and making predictions;
- Constructing the gist;
- Monitoring;
- Revising meaning: reconstructing the draft;
- Reflecting and relating; and
- Evaluating.

After students were familiar with strategies, teachers helped scaffold students’ metacognitive knowledge of strategy use. The intervention provided extensive professional development for teachers on how to use and implement a cognitive strategies curricular approach for ELLs.

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44 Bullet points taken verbatim from: Ibid., p. 277.
and the importance of holding increasingly rigorous expectations of ELLs.\textsuperscript{45} Overall, this study demonstrates that cognitive strategy instruction is an effective approach that teachers can use in their classrooms to improve English learners’ reading and writing achievement. A major aspect of the success of this approach was the direct, explicit instruction in using strategies, which proved effective for ELLs at all grade levels. Other studies, such as those conducted by Fuchs et al. and Orosco underscore the importance of explicit strategy instruction as an effective method for improving the math achievement of ELLs.

While explicit math instruction is one effective strategy for improving students’ math achievement, parental involvement is critical for reducing the achievement gap. In one study, researchers O’Sullivan et al. studied the effect of parental involvement in homework on low-income, minority middle school students’ math achievement. The researchers identified three methods of homework assistance: provision of structure, direct assistance, and autonomy support. Overall, results of the study indicated that the majority of parents most often used the provision of structure method—such as making the child set aside quiet time for homework completion and providing incentives for homework completion—and were much less likely to provide direct assistance or autonomy support.\textsuperscript{46} More importantly, results showed that only provision of structure had a significant effect on student grades, although the effect was small compared to the effect of prior math achievement.\textsuperscript{47} These findings reveal the importance of parental involvement in student’s homework, especially in setting the time and structure for homework completion. In light of these findings, schools and teachers can encourage parents to be involved in their student’s homework completion and provide strategies for creating a structured environment.

\textsuperscript{45} Olson and Land, Op. cit.
\textsuperscript{46} Ibid., p. 176.
\textsuperscript{47} Ibid., pp. 176–179.
SECTION III: PARTICIPATION IN ADVANCED COURSEWORK AND PROGRAMS

This section summarizes key empirical research on the efforts to narrow the gap in participation in advanced coursework, including participation in gifted and talented programs and Advanced Placement (AP) classes. An overview of key findings from this review is presented first, followed by a more in-depth synthesis of the research.

OVERVIEW OF FINDINGS

- Traditional methods of identifying students for access to gifted and talented programs or AP classes exclude racially, ethnically, linguistically, and socioeconomically diverse students. Schools can increase participation in advanced classes by offering open enrollment or by changing their identification methods to include multiple criteria and pathways beyond only grades and teacher referrals.

- Teachers and school staff can contribute to underrepresented students’ success in AP classes by holding students to high expectations and attending training on cultural and linguistic diversity. To sufficiently prepare students for the AP exam, curriculum planning efforts should ensure that assignments and activities match the rigor of the exam.

- Traditionally underrepresented students may require additional academic support and scaffolding to improve achievement in advanced level classes. Potential strategies include discussion groups, curricular scaffolding, and targeting study skills.

- In addition to academic support, racially and ethnically diverse students benefit from social support groups. Research suggests that these groups allow students to flourish socially as well as academically by learning to navigate the intricacies of cultural differences.

SUMMARY OF RESEARCH

This section highlights four research studies that examine efforts to increase participation of traditionally underrepresented students in advanced coursework. All four articles were published since 2007. The studies employ qualitative research methodologies with students who have participated in AP classes and are primarily culturally and linguistically diverse and low-SES, as well as teachers and administrators. This methodology allows researchers to determine what practices and supports increase access to advanced classes for traditionally underrepresented students. Due to the qualitative nature of these studies, results are presented narratively rather than in a table.

One article published in Exceptional Children explores how the recruitment practices, specifically test scores and teacher referrals, contribute to the underrepresentation of culturally and linguistically diverse students in advanced classes. The authors state that the
“almost exclusive dependence on test scores for recruitment disparately impacts the demographics of gifted programs by keeping them disproportionately White and middle class.”\textsuperscript{48} Furthermore, teacher referrals serve as a “gatekeeper” for underrepresented students, due to factors such as unconscious bias.\textsuperscript{49} Accordingly, the authors argue that increasing the percentage of underrepresented students in gifted and talented programs and AP classes requires culturally sensitive recruitment strategies. Research-based strategies for supporting underrepresented students in gifted and talented programs and AP classes are listed below and further explored in Figure 3.1.\textsuperscript{50}

- Adopt culturally responsive theories and definitions of giftedness;
- Identify and serve gifted underachievers;
- Adopt culturally sensitive instruments, such as non-verbal tests of intelligence;
- Provide gifted education preparation for educators; and
- Provide multicultural preparation for educators.

**Figure 3.1: Underrepresentation Barriers and Recommendations**

<table>
<thead>
<tr>
<th>BARRIER</th>
<th>RECOMMENDATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing and assessment instruments that contain biases.</td>
<td>Culturally sensitive measures that are reduced in cultural demand and linguistic demand.</td>
</tr>
<tr>
<td>Policies and procedures that are both indefensible and have a disparate impact on CLD students.</td>
<td>Policies and procedures examined for biases and negative impact, including teacher referrals, cut-off scores, weights assigned to items in matrices, and requirements associated with attendance, behavior, and GPA.</td>
</tr>
<tr>
<td>Static definitions and theories of gifted that give little consideration to cultural differences and that ignore how students’ backgrounds influence their opportunities to demonstrate skills and abilities.</td>
<td>Culturally sensitive definitions and theories of gifted; definitions that recognize how differential opportunities result in poor outcomes for CLD students; definitions that recognize how differences can mask skills and abilities.</td>
</tr>
<tr>
<td>Lack of teacher training in both gifted education and cultural diversity, which contributes to deficit thinking about CLD students.</td>
<td>Substantive, ongoing preparation of teachers in gifted education on cultural diversity, linguistic diversity, and economic diversity.</td>
</tr>
</tbody>
</table>

Source: Ford et al.\textsuperscript{51}

In a qualitative study published in *Gifted Child Quarterly*, researchers studied 25 elementary and secondary programs that successfully increased the numbers of underrepresented students in gifted and talented programs for common characteristics.\textsuperscript{52}


\textsuperscript{49} Ibid., pp. 295–296.

\textsuperscript{50} Bullet points quoted verbatim from: Ibid., pp. 298–301.

\textsuperscript{51} Figure reproduced verbatim from: Ibid., p. 299.

Programs that increased enrollment of underrepresented students in advanced coursework:

- Modified identification procedures:
  - Use of alternative pathways for program identification,
  - Early identification usually at the primary grade level, and
  - Inclusion of information about broader perspectives of student performance.

- Prepared students for advanced classes prior to their participation in advanced classes;

- Instituted curriculum changes:
  - These changes included individualized instruction, emphasis on problem solving and critical thinking, and practices that included the student’s cultural background.

- Promoted family engagement; and

- Regularly evaluated their program for improvement.

Research suggests that racially, ethnically, economically, and linguistically diverse students succeed in advanced courses when they are held to high expectations and provided appropriate support. Accordingly, a study by Kyburg, Hertberg-Davis, and Callahan, examined the contributions to the success of students in AP and IB classes by conducting interviews and focus groups with students, teachers, counselors, and administrators at three urban high schools from two mid-Atlantic states. The student sample was racially and ethnically diverse and a large percentage was eligible for free or reduced-price lunch. Results of the study showed that the qualities of a school environment that promotes the success of diverse students in AP/IB classes included a “pervasive and consistent belief that these students could succeed, which resulted in instructional and group support” and “scaffolding to support and challenge able students.”

53 Also, the researchers found that increasing minority student participation and success in advanced coursework involved the interconnected participation of multiple stakeholders: students, parents, teachers, and administrators. The responsibilities of each stakeholder group are highlighted in Figure 3.2 on the next page.

The schools in the study increased access to AP/IB classes for underrepresented students through a successful identification process that was based on multiple criteria, including:

- Available test information;
- Student products and/or performance;
- Academic achievement;
- Teacher judgment of learning and behavioral characteristics; and
- Parent/community judgment of learning characteristics and potential.

As a condition of employment, teachers of advanced courses were required to attend workshops and trainings on strategies for identification and instruction of gifted students. Further, participating in AP/IB classes was promoted within the school. For example, AP students received grade incentives, where grades in AP classes were favorably weighted in GPA calculation. In addition, students participating in these classes also received opportunities for internships. One school also had a “discussion group run by a school psychologist, a guidance counselor, and the gifted resource coordinator to help male minority students participate in AP courses.” The researchers state that “one of the benefits of such a group was the opportunity to learn code-switching or to become more adept at determining

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54 Ibid., p. 193.
55 Bullet points quoted verbatim from: Ibid., p. 195.
56 Ibid., p. 200.
57 Ibid., p. 197.
appropriate timing in the use of different vocabulary and grammatical constructions.”\(^{58}\) Additional supports included extracurricular help, lunchtime discussion forums, and subsidized college visits.\(^{59}\) Also, students could attend a summer program to help them hone study skills and habits.\(^{60}\)

In another study, Hallett and Venegas conducted interviews with college-bound, low-income Grade 12 students (who were 85 percent black or Hispanic and 100 percent eligible for free or reduced-price lunch) to identify patterns in their experiences in AP classes and to determine whether they felt their AP course preparation had prepared them for the exam. From interviews with the students, researchers concluded that barriers to success in AP classes and on the AP exam for minority students included teachers who were unprepared, unqualified, or unmotivated to teach an AP class; low expectations for students; class material that was not challenging enough and material was taught at a level less rigorous than the exam. Also, students noted that track placements often prohibited them from registering for AP classes or made it logistically challenging to attend an AP class due to their schedule.\(^{61}\) These findings suggest that curriculum planning efforts should ensure assignments and activities meet the demand and rigor of exams. Similarly, this study underscores the importance of school staff monitoring course placements and schedules for underrepresented students to ensure access to advanced courses.

\(^{58}\) Ibid., p. 198.
\(^{59}\) Ibid., p. 204.
\(^{60}\) Ibid., p. 197.
SECTION IV: COLLEGE READINESS

This section highlights research studies addressing the gap in college preparation, focusing on participation and success on standardized achievement tests such as the SAT and ACT, as well as college enrollment.

OVERVIEW OF FINDINGS

- Many students rely on the school for information about college, and thus high schools should provide students with “information about what it takes to prepare for college, the need to choose wisely, and strategies and work habits that will assure success in college.” Effective strategies include encouraging college visits, assisting students with college applications and financial aid applications, and helping students contact college representatives.

- Similarly, school counselors play a critical role in providing parents with knowledge of college options, financial aid, and application-related topics. This is especially important for students whose parents did not go to college. Strategies for involving parents include individual meetings, sending information about college options, test dates, and financial aid, as well as organizing parent volunteers that engage with other parents.

- Research suggests that schools can increase the achievement of traditionally underrepresented students on college entrance exams by providing access to test preparation before students’ senior year. Schools should set high expectations for students’ achievement on college entrance exams, and ensure that students know how entrance exam scores specifically relate to the college admissions process. However, traditionally underrepresented students should understand that entrance exams are not the only determinant of college acceptance and not be dissuaded from applying to college by low scores.

SUMMARY OF RESEARCH

Figure 4.1 on the following page presents three studies that explore college preparation. All three studies were conducted between 2008 and 2010, and include a mix of qualitative and quantitative methodologies. Two studies focus on racially diverse students in Grades 10 and 12, while the sample of one study included high school guidance counselors.

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**Figure 4.1: Empirical Studies of Strategies for Reducing the College Readiness Gap**

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample</th>
<th>Method</th>
<th>Key Outcomes</th>
</tr>
</thead>
</table>
| Deil-Amen and Tevis    | 110 Grade 12 students in high-poverty schools in Chicago               | Researchers conducted interviews with students about their experiences with the ACT college entrance exam during their senior year of high school, one year later, and one to two years following. | - Black and Hispanic students lacked knowledge of ACT requirements and of its importance, were unaware of the importance of preparing for the exam, and had poor preparation for the exam.  
- Students felt a lack of agency over their performance on the exam. Low ACT scores discouraged some students from attending college, despite some colleges’ test-optional status.  
- While parents of first generation college students encouraged them to go to college, they had very limited knowledge about the college application process and were unable to provide information to their child.  
- Students relied on the school as their sole source of information about college. |
| Holcomb-McCoy          | 22 high school guidance counselors at four high-poverty and high-minority school districts in the eastern part of the United States | Descriptive study examined high school counselor beliefs, attitudes, and practices in relation to parent involvement in the college preparation/admission process.  
Surveyed guidance counselors with the counselor version of the College Preparation Questionnaire. | - Counselors increased college knowledge of high-poverty, minority students by connecting with parents through activities such as college-planning meetings for parents of Grade 11 students, sending parents calendars and reminders of college planning activities, and holding individual conferences with parents. |

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<thead>
<tr>
<th>Study</th>
<th>Sample</th>
<th>Method</th>
<th>Key Outcomes</th>
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</table>
| Hill (2008)"65   | ▪ 1,354 students in Grades 10 and 12                                   | ▪ Examined the extent to which high schools provided resources (i.e., encourage college visits, assist with college applications, assist with financial aid applications, and contact college representatives on behalf of students) affected whether a student attended a two-year, four-year, or no college. | ▪ Schools that provided the most resources to families had the highest levels of math achievement.  
▪ Students who attended schools that provided high levels of resources were more likely to attend a four-year college. The high-resource strategy resulted in an 800 percent increase in enrolling in a four-year college versus a two-year college.  
▪ Schools that provided the most resources can mediate the effect of race in the college enrollment gap. |

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The studies above highlight the critical role schools play in providing resources for underrepresented students in order to increase college readiness and enrollment. For many students, especially those who come from families who are low-income, do not speak English as a first language, or whose parents did not go to college, the school is the student’s only source of information about college entrance exams and college options.

Specifically, Deil-Amen and Tevis followed a group of 110 racially and ethnically diverse low-income students after they took their college entrance exams. Three years after graduating high school, a third had either dropped out, stopped going, or never went to college. Interviews revealed that students had extremely limited information about their college entrance exam, and were held to low expectations by the school. This lack of knowledge combined with a lack of resources for preparation led to poor student preparation for the exam as well as feelings of a lack of agency over their test scores. Therefore, the findings of this study highlights the critical role of the school as a primary source of information about college for many students. Schools should provide all students with resources and information on college entrance exams as well as preparatory programs at no cost to students who need them.

By holding school expectations and norms that underscore the importance of sharing resources and ‘brokering’ the college process, schools can reduce the gap in college enrollment.

These findings on the importance of providing resources to students and families is also supported by a study by Hill, which studied the effect that the level of a school’s provision of college-planning resources had on whether students enrolled in college. Results revealed that the more resources a school provides, the higher a school’s four-year college enrollment rate. Additionally, providing high levels of resources was able to mediate the racial college enrollment gap. Hill refers to providing high levels of resources as the brokering strategy, which is “characterized by substantial resources and a strong organizational commitment to affording students and families access to these resources.” Resources include encouraging students to visit colleges, assisting students with college applications, assisting students with financial aid applications, and assisting students with contacting college representatives. Results indicated that schools that used this strategy equally provided resources for advantaged and disadvantaged students, which reduces the gap in college enrollment. By holding school expectations and norms that underscore the importance of sharing resources and ‘brokering’ the college process, schools can reduce the gap in college enrollment between advantaged and disadvantaged students.

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69 Ibid., p. 58.
70 Ibid., p. 65.
SECTION V: BEHAVIOR AND SUSPENSION

This section summarizes empirical research on efforts to close the gap in suspension rates, focusing on strategies for improving student behavior and reducing discipline referrals.

OVERVIEW OF FINDINGS

- **Strategies to close the discipline gap and reduce overall instances of suspension and expulsion require the interaction of input and support from students, teachers, and administrators.** Regular data reporting is important, as school-based teams of teachers and administrators should regularly review student behavioral and discipline data, disaggregated by race/ethnicity and special education status, for trends and active decision-making.

- **Schoolwide Positive Behavior Support (SWPBS) is an effective approach to improving student behavior, including for students with disabilities, and can reduce the racial discipline gap.** SWPBS is a three-tiered program for preventing problem behaviors that provides universal supports for all students with additional, more intensive supports for small groups and individual students. Effective strategies of SWPBS include the systematic implementation of positive behavioral supports and procedures at the classroom and school level.

- **At the school level, schools should create a culture that values high academic expectations, which research suggests can be internalized by students.** Teachers who hold students to higher expectations and engage them with more rigorous work contribute to narrowing the discipline gap. Similarly, principals play a significant role in setting a disciplinary approach that is racially and culturally equitable and focused on preventative alternatives to suspension and expulsion.

- **Teachers should receive ongoing training and support for implementing positive behavioral interventions and supports.** These can include school leadership teams and coaches, as well as expert-led professional development to increase their knowledge of and relationships with their students’ cultural backgrounds.

SUMMARY OF RESEARCH

Figure 5.1 on the following page highlights four empirical studies that examine effective methods for narrowing the discipline gap. Two of the studies examined the discipline gap across elementary, middle, and high school, while one looked at middle and high school students and one looked specifically at Grade 9 students. While three of the studies focus on reducing the disproportionate disciplinary gap between white and black students, many of the strategies are also effective at reducing the suspension rate of special education students.
Figure 5.1: Empirical Studies of Strategies for Reducing the Discipline Gap

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample</th>
<th>Method</th>
<th>Key Outcomes</th>
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<tbody>
<tr>
<td>Skiba et al.</td>
<td>Data on incidences of suspension and expulsion of all public school</td>
<td>Examined contribution of infraction type, student characteristics, and</td>
<td>Racial disparities in discipline were more predicted by school-level</td>
</tr>
<tr>
<td>(2014)^71</td>
<td>students in a Midwestern state</td>
<td>school-level variables on racial disparities in discipline.</td>
<td>characteristics than by individual or behavioral characteristics.</td>
</tr>
<tr>
<td></td>
<td>730 schools, 1,068 principals, and 43,320 students with an incident of</td>
<td>Assessed principal perspectives on school discipline through an adapted</td>
<td>The racial disparity in suspension (in addition to overall suspension and</td>
</tr>
<tr>
<td></td>
<td>suspension/expulsion</td>
<td>version of the Disciplinary Practices Survey.</td>
<td>expulsion incidences) decreased when a principal favored a preventive</td>
</tr>
<tr>
<td></td>
<td>73.6% white, 23.7% black</td>
<td>Principals were categorized as either more favorable to a preventive</td>
<td>orientation toward school discipline and increased when a principal favored</td>
</tr>
<tr>
<td></td>
<td>53.4% FRPL</td>
<td>orientation toward school discipline or more favorable to the use of</td>
<td>the use of school exclusion and zero tolerance as a disciplinary strategy.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>school exclusion and zero tolerance as a disciplinary strategy.</td>
<td>Another statistically significant outcome was that the higher percentage of</td>
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<td>black students in a school, the more likely a student was to receive an</td>
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<td></td>
<td></td>
<td></td>
<td>out-of-school suspension.</td>
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<table>
<thead>
<tr>
<th>Study</th>
<th>Sample</th>
<th>Method</th>
<th>Key Outcomes</th>
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</table>
| Tobin and Vincent (2011)<sup>72</sup> | - 46 elementary, middle, and high schools across four states  
- Data from the Effective Behavior Support Survey, Schoolwide Information System, and National Center for Education Statistics | - Studied how the implementation of SWPBS affected both the school's overall suspension and expulsion rates and the disproportionate suspension and expulsion rates of black students in comparison to white students. | - Initially, overall, black students were 3.11 times more likely to be suspended or expelled than white students.  
- The majority of schools that participated in the follow-up analysis were able to substantially reduce their suspension/exclusion gaps by improving their use of SWPBS.  
- Survey items most strongly associated with a reduced disproportionality in suspension/expulsion rates were positively reinforcing expected positive student behaviors (beta coefficient of -.812) and efficient and orderly transitions between instructional and non-instructional activities (beta coefficient of -.606).  
- Another notable measure associated with reducing the gap included clearly defining problem behavior (beta = -.49). |
| Gregory, Cornell, and Fan (2011)<sup>73</sup> | - A random sample of Grade 9 students in 199 public high schools in Virginia  
- Approximately 59% white, 30% black; 28% FRPL | - Used school climate surveys to examine how the high school climate measured, as levels of structure and support are related to suspension rates and the racial discipline gap. | - Schools with the lowest levels of support and structure had the highest suspension rates for all students and the largest gap in suspension rates between black and white students (15%).  
- Similarly, schools with the highest levels of support and structure had the smallest racial suspension gaps (12%).  
- The interaction of support and academic challenge was statistically significant, while the interaction between support and experience of school rules was not.  
- The association between suspension rates and the level that teachers challenged students varied by a teacher’s level of support. |

Barnhart, Franklin, and Alleman (2008)\textsuperscript{74}

<table>
<thead>
<tr>
<th>STUDY</th>
<th>SAMPLE</th>
<th>METHOD</th>
<th>KEY OUTCOMES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2545 students at 59 middle and high schools in Los Angeles Unified School District (LAUSD)</td>
<td>Teachers and staff at targeted schools received intensive professional development on implementing SWPBS strategies.</td>
<td>Average suspension rate for students with disabilities among targeted schools decreased by five percent.</td>
</tr>
<tr>
<td></td>
<td>50% female, 50% male</td>
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<tr>
<td></td>
<td>71.2% Hispanic, 17% black, 7.2% white, 2.7% Asian; 35% ELL, 12.9% special education</td>
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Reducing the suspension and discipline gap requires support and commitment from stakeholders at all levels. At the school level, principals should re-evaluate their position on discipline, as Skiba et al. highlight that a preventive orientation toward school discipline can reduce racial disparities in suspension and expulsion rates. Further, Tobin and Vincent and Gregory, Cornell, and Fan reveal that it takes a combination of teacher level and student level commitments to reduce suspension gaps.

**Instituting behavior supports effectively improves student behavior and reduces the racial discipline gap.** Tobin and Vincent investigated the effectiveness of Schoolwide Positive Behavior Support(s) (SWPBS), “a set of systemic prevention processes focused on developing positive and contextually appropriate relationships intended to facilitate the social and academic success of all students, regardless of their race or ethnicity.” Specifically, they examined which aspects were most effective at reducing the disproportionate suspension of black students compared to white students. Results indicated two aspects of SWPBS had the greatest effect on reducing the racial discipline gap: acknowledging and positively reinforcing expected and appropriate student behavior (four positives for every one negative is recommended as most effective) and ensuring efficient and orderly transitions between instructional and non-instructional activities. Additional SWPBS improvements that reduce the gap include:

- Patterns of student problem behaviors are reported to teams and faculty for active decision making on a regular (e.g., monthly) basis;
- The school team has access to ongoing training and support from district personnel; and
- Local resources are used to conduct functional assessment-based behavior support planning for ~10 hours/week/student.

Further, the significance of positive reinforcement as the greatest effect on reducing the racial suspension gap supports the importance of trusting and supporting student-teacher relationships. **By building relationships with their students that focus on respect, acknowledgement, and trust, teachers can decrease the disparity in suspension rates.** The researchers suggest schools should implement behavior support interventions in a culturally responsive and equitable manner, which can be increased through professional development.

While Tobin and Vincent suggest that behavior intervention models are effective at reducing the disproportionate number of racial minority students suspended, Barnhart, Franking, and Alleman show that they are also effective at reducing the number of special education...
students who are suspended. In a study of the effects of SWPBS in Los Angeles Unified School District, the researchers found that schools that implemented SWPBS were able to significantly lower the number of students with disabilities being suspended in comparison to schools that did not implement SWPBS.\textsuperscript{79}

Moreover, Gregory, Cornell, and Fan found that a school’s climate and student-teacher relationships are key factors in reducing the racial suspension gap. By surveying students, the researchers highlighted that schools with the smallest racial suspension gaps and the lowest overall suspension rates shared the following qualities:

- **Structure:** Students believed their teachers challenged them and held them to high expectations; and
- **Support:** Students felt teachers and school staff were supportive and respectful of them.

Aspects of the structure measure that was statistically significant was academic press, or “how much teachers press the student to study hard and do challenging work”.\textsuperscript{80} Aspects of the support measure included whether students felt teachers cared about them and treated all students fairly. These results indicate that school climate is a significant factor in reducing the discipline gap, and by improving levels of support and structure, schools can effectively narrow the gap.

\textsuperscript{79} Barnhart, Franklin, and Alleman, Op. cit.

SECTION VI: ON-TIME GRADUATION

This section summarizes empirical research on efforts to increase on-time graduation rates.

OVERVIEW OF FINDINGS

- Schools should identify students at risk of not graduating on-time as soon as possible. Characteristics of students who do not graduate on-time include very low achievement and a high absence rate. School administrators and teacher should monitor key transitions in a student’s school career to ensure they are on-track and intervene as necessary.

- Policy changes to improve on-time graduation rates must address the whole school as well as at-risk students. Effective policy changes include increased academic support, improving school climate, and behavioral interventions. Peer mentoring programs that pair trained, successful older students with at-risk younger students can improve chances of graduating on-time.

- School climate, including positive teacher-student relationships, contributes to a student’s chances of graduating on-time. Students are more likely to graduate on-time and have higher motivation when they feel respected, cared about, and challenged by their teacher. Students who feel alienated by a school climate that does not value their differences are more likely to not graduate on-time or drop out. Similarly, schools should train students of all ages to reduce peer pressure, which contribute to behaviors that impede on-time graduation.

SUMMARY OF RESEARCH

This section highlights four empirical studies that address successful efforts to increase on-time graduation (Figure 6.1). All four studies were published between 2011 and 2015 and employ a mix of quantitative and qualitative research methodologies including surveys and in-depth interviews. Additionally, all the studies explored high school level variables and included participants who were in Grade 9 or above. While the participants were equally represented in terms of gender, the majority were Hispanic and low-income.
### Figure 6.1: Empirical Studies of Strategies for Increasing On-Time Graduation

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample</th>
<th>Method</th>
<th>Key Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robertson, Smith, and Rinka (2015)(^{81})</td>
<td>Administrators at 23 high schools in North Carolina</td>
<td>Surveyed administrators about effective practices they used to improve graduation rates.</td>
<td>Effective strategies included improving academic supports, fostering a positive school and classroom climate, and ensuring a smooth transition from middle to high school.</td>
</tr>
<tr>
<td>Johnson, Simon, and Mun (2014)(^{82})</td>
<td>268 Grade 9 students (50% male, 50% female) from a low-income, Mid-Atlantic, urban high school 92% Hispanic, 6% other, 2% black</td>
<td>Grade 9 students participated in a peer-mentoring program with Grade 12 students. Groups of 12 Grade 9 students and 2 Grade 12 students met weekly for 40 minutes during the year to “practice essential academic, social, and emotional skills, critical thinking, goal setting, decision making, time management, teamwork, and communication.” Three, two and half hour “booster sessions” were held the following year. The program included Family Nights.</td>
<td>77% of the program group graduated compared to 68% of the control group. For male students, 81% graduated versus 63% of the control group. Male students who initially had a low probability of graduating but participated in the peer group had a 60% better chance of graduating than male students with an initial low graduation probability who did not participate.</td>
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</tbody>
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<table>
<thead>
<tr>
<th>STUDY</th>
<th>SAMPLE</th>
<th>METHOD</th>
<th>KEY OUTCOMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Luna and Revilla (2013)³³</td>
<td>▪ 17 Hispanic 18-25 year olds who dropped out of high school</td>
<td>▪ Focus groups and interviews with youth.</td>
<td>▪ The majority of students left school because of racial discrimination and micro-aggression, negative school climate, unengaging teachers and coursework, and personal issues.</td>
</tr>
<tr>
<td></td>
<td>▪ Ten males and seven females</td>
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<td></td>
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<tr>
<td></td>
<td>▪ A majority were born in Mexico or Central America</td>
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<tr>
<td>Bornsheuer et al. (2011)³⁴</td>
<td>▪ Graduation data of 1,202 students from 2007, 2008, and 2009 at a Texas high school</td>
<td>▪ Examined effect of retention in Grade 9 on a student’s chance of graduating on-time.</td>
<td>▪ Results indicated a statistically significant relationship between Grade 9 retention and on-time graduation.</td>
</tr>
<tr>
<td></td>
<td>▪ 25% white, 21.3% black, 52.4% Hispanic, and 1.2% Asian</td>
<td></td>
<td>▪ Grade 9 students who were retained were 6.01 times less likely to graduate on-time.</td>
</tr>
<tr>
<td></td>
<td>▪ 563 male students and 639 female students</td>
<td></td>
<td>▪ Effect size = 0.61</td>
</tr>
</tbody>
</table>

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In their study, Luna and Revilla conducted focus groups and interviews with Hispanic students to determine their experiences in school and their reasons for leaving school prior to graduation. The researchers found that students left due to a combination of school issues and personal issues. School issues that caused students to leave included experiences of racial discrimination and micro-aggressions by their teachers and other students; they felt they were treated worse than the white students and that teachers and school staff negatively viewed their culture and language. Students also described their own negative behaviors that were at fault, such as skipping class, laziness, and drugs, and explained that they felt pressure from their peers to engage in these activities. Other less often highlighted mental health, pregnancy, and needing to work as personal reasons they dropped out of school.\textsuperscript{85}

In another study, researchers Robertson, Fink, and Rinka surveyed high school administrators who had quickly improved their on-time graduation rates by an increase of 16.7 to 31.3 percent. Notably, changes were implemented both on the school and classroom levels: schools focused on changes that affected the whole school and student body as well as changes that only impacted students identified as at-risk for not graduating (such as those with low academic achievement, low attendance, and misbehavior). The interventions that the majority of school districts most often identified as the most effective at improving their graduation rate included improving academic supports, fostering a positive school and classroom climate, and ensuring a smooth transition from middle to high school. In addition, academic supports included literacy programs, tutoring, college preparatory programs, and freshman academies. Further, half of the schools reported attempting to make their curriculum more interesting, relevant, and engaging for students and 22 percent mentioned a school culture of high expectations. Successful school districts also allotted additional funding for these initiatives and adding additional personnel such as graduation coaches, where needed. Additional interventions described as effective for students most at-risk of not graduating on-time included:\textsuperscript{86}

\begin{itemize}
\item Afterschool Programs;
\item Behavioral Interventions;
\item Mentoring;
\item Pregnancy Prevention;
\item Family Engagement; and
\item Life Skills Development.
\end{itemize}

Similarly, the National Education Association states that focused action can improve graduation rates and decrease dropout rates. Specific actions schools can take to increase on-time graduation include:\textsuperscript{87}

\textsuperscript{85} Luna and Revilla, Op. cit.
Use student data to identify who is not graduating and who is at risk for not graduating on-time;

Make sure students are successful at key transition points—entry into kindergarten; at grade level performance in reading and math in the early grades; and the transitions to middle school, high school, and adulthood;

Use a tiered prevention and intervention system that begins with schoolwide interventions for attendance, student behavior, and academic performance;

Monitor the effects of high-stakes tests on students who are at risk of dropping out; and

Implement key school features that lead to higher graduation rates, beginning with developing strong, caring relationships between adults and students.

Additionally, the NEA explains that not graduating on-time or dropping out is usually the result or final step of a longer process. Thus, improving on-time graduation requires addressing students’ needs early on and creating early warning systems for identifying students who may be at risk. For example, low attendance and low achievement in middle school have been shown as contributing factors of not graduating on-time. Thus, the NEA recommends focusing on key transition points in a student’s academic career to ensure they are on-track to graduation, starting as early as kindergarten. Figure 6.2 below highlights effective policies and practices for the key transition points in students’ school careers.\(^88\)

<table>
<thead>
<tr>
<th>TRANSITION POINT</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entry into Kindergarten</td>
<td>All children have access to high-quality pre-K education and are ready for kindergarten.</td>
</tr>
<tr>
<td>Success in Early Reading/Math</td>
<td>All students can read on grade level and do grade level math by the end of second grade.</td>
</tr>
<tr>
<td>Special Education Placement</td>
<td>Identification and placement are used exclusively for students with disabilities. Placements are not based on poor academic performance, student behavior, or English language proficiency.</td>
</tr>
<tr>
<td>Transition to Middle School</td>
<td>Poor attendance, behavior problems, and academic failure are addressed through interventions that are: a) schoolwide, b) targeted, and c) intensive. On-time promotion to the next grade with extra support to catch up.</td>
</tr>
<tr>
<td>Transition to High School</td>
<td>On-time promotion to Grade 10 with extra support to catch up.</td>
</tr>
<tr>
<td>Transition to Adulthood</td>
<td>Multiple pathways to graduation Schools help students transition to adulthood and adult behaviors.</td>
</tr>
</tbody>
</table>

Source: National Education Association\(^90\)

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\(^{88}\) Ibid., p. 92.

\(^{89}\) Figure contents reproduced verbatim from: Ibid., p. 93.
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