



# COMPREHENSIVE HIGH SCHOOL REFORM STRATEGIES

A Framework for School Improvement and a  
Review of the Evidence

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# OVERVIEW

Obtaining a high school diploma helps open doors for young people; however, while overall graduation rates are improving, persistent disparities in graduation rates among groups of students remain, and must be addressed. High school reform is a viable approach to addressing these disparities. Early College High Schools, Small Schools of Choice, and Career Academies are all secondary school reform models that have been rigorously studied and shown to improve student outcomes in many areas, including math and reading achievement, high school graduation, postsecondary enrollment, and earnings later in life. This report seeks to assist practitioners and policymakers in education in making systematic, evidence-based decisions. The authors:

(1) Reviewed 13 evaluations of comprehensive reform efforts, identified the features of the models evaluated, and categorized them to create a high school reform framework that can be generally applied. The authors hope that school and district leaders can compare their current efforts with the framework to identify how they might refine or augment those efforts.

(2) Compiled information on prevalent features of reform models that have proven promising for improving student outcomes. Reformers can draw on this information as they use the framework. The following features appeared commonly across models and were associated with positive effects on student outcomes: personalized relationships with school staff members, increased academic rigor, teacher/student respect, teacher professional development, teacher/parent communication, principal leadership, and teacher mutual support. In reviewing their own efforts to strengthen high schools, policymakers and practitioners may want to consider seriously how they are addressing these aspects of the high school student experience.

The report concludes with some questions that may be helpful when beginning this work:

- How do your current programs and initiatives line up with the features described in the framework?
- Where are there gaps in your efforts to improve your schools?
- Do you have a plan for monitoring the implementation of changes?
- Are you prepared to assess whether you improve the educational outcomes of students?
- Do you have support in the district and the community for your intended reforms?
- Have you thought through how you can sustain changes you make if they prove to be successful?



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The Authors



Obtaining a high school diploma helps open doors for young people. On average, students who earn their high school diplomas have better postsecondary education and workforce outcomes than their peers who do not.<sup>1</sup> The good news is that the national high school graduation rate has increased in recent years, reaching 85 percent in 2017-2018.<sup>2</sup> However, disparities persist in the graduation rates of different groups of students. American Indian/Alaska Native, Black, and Hispanic student graduation rates all fall below the national average, and in 2017, 45 states reported graduation rates of students from families with low incomes that were below the overall national average graduation rate for all students. In fact, in that year 14 states saw a *decrease* from the previous year in their graduation rates for students from families with low incomes.<sup>3</sup> It is clear that while average completion rates are improving, stark inequities persist and must be addressed.

High school reform is a viable approach to addressing disparities in graduation rates. Early College High Schools, Small Schools of Choice (SSCs), and Career Academies are all school reform models that have been rigorously studied and shown to improve student outcomes in many areas, including math and reading achievement, high school graduation, postsecondary enrollment, and earnings later in life.<sup>4</sup> Importantly, students of all backgrounds experience many of these positive effects.

This report seeks to assist educational practitioners and policymakers engaged in school improvement efforts (for example, school and district leaders and staff members, state education officials, and local and national program developers) in making systematic, evidence-based decisions, by providing the following information:

1. A framework for school improvement that can help practitioners and policymakers identify changes that could improve their high schools. The authors reviewed 13 evaluations of comprehensive reform efforts, identified the features of the models evaluated, and categorized them to create a framework that can be generally applied. The authors hope

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1. U.S. Bureau of Labor Statistics (2021).

2. National Center for Education Statistics (2021).

3. Atwell, Balfanz, Bridgeland, and Ingram (2019).

4. Edmunds et al. (2020); Berger et al. (2013); Bloom and Unterman (2014); Bloom, Unterman, Zhu, and Reardon (2020); Unterman and Haider (2019); Kemple and Snipes (2000).

that school and district leaders can compare their current efforts with the framework to identify how they might refine or augment those efforts. Leaders can do so by using the framework to assess which areas may already be addressed by current practices and organizational structures and which might be targets for attention and resources. Such decisions can guide improvement activities to ensure they are complementary and additive rather than contradictory or duplicative.

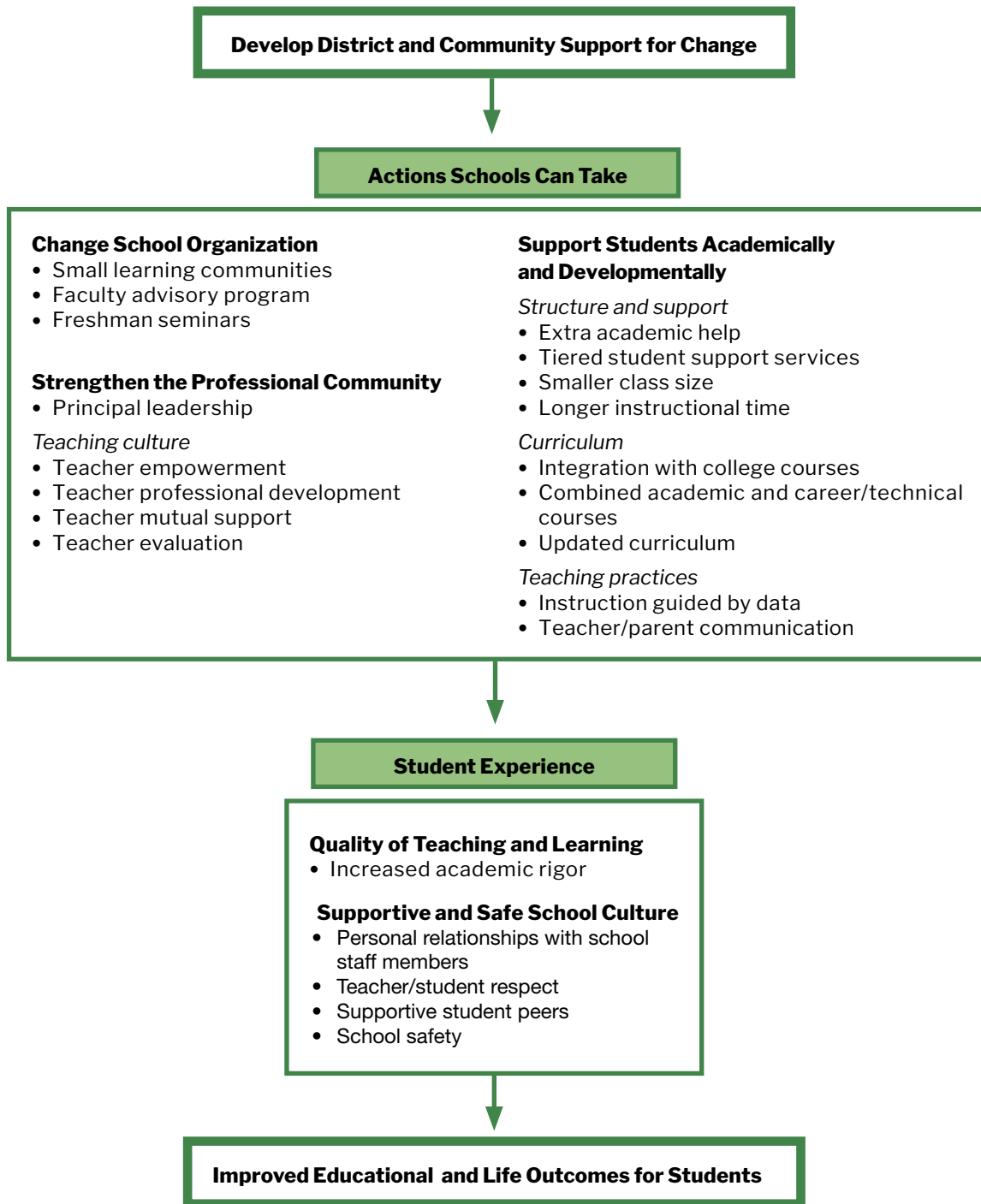
2. Information on the most prevalent features of reform models and those that have proven most promising for improving student outcomes. Reformers can draw on this information as they use the framework.
  - a. **Features of reform efforts that are common across models.** The report discusses the prevalence of specific features of 13 well-studied models. Features that appear most commonly across models represent ones that the designers and implementers of these reform models believe hold promise for improving schools and are feasible to execute in their schools. Thus, these features are worth further consideration as reformers reflect on and interpret the framework.
  - b. **Features of reform that are proven or promising for improving student outcomes.** The report shares what an analysis of New York City’s small high school reform initiative of the early 2000s reveals about the influence of individual reform features on high school graduation rates. Reformers can use this analysis as they determine which efforts to pursue.

## A NEW FRAMEWORK FOR ASSESSING AND ORGANIZING SCHOOL IMPROVEMENT EFFORTS

This document presents a new framework that districts or other organizations can use as they review their high school reform efforts. Many past frameworks have been anchored in just one context or one specific model. This framework is intended to be general enough that policymakers and practitioners can apply it in the contexts relevant to them. They can use it to help clarify where they may already have useful practices and structures in place in their high schools and where they might want to make change or additions to strengthen their schools. And the framework can prompt them to carefully consider the mechanisms through which the reforms they adopt could be expected to affect student outcomes. The end of this document includes a few guiding questions that users of the framework may want to draw on to begin their work.

The Framework for School Improvement (Figure 1) is based on a review of 13 rigorously evaluated comprehensive school reform models and high school improvement initiatives, described in greater detail in Appendix A. The top box in the framework identifies a precursor to creating change—“Develop District and Community Support.” This report does not address this precursor in detail, but the support of community and school stakeholders is

**FIGURE 1. A Framework for School Improvement**



a critical piece of any successful reform strategy. Another vital feature of school reform, sustainability, is discussed briefly at the end of the report. The main section of the framework

is divided into two categories: “Actions Schools Can Take” (the second box) and “Student Experience” (the third box). Actions Schools Can Take includes three subcategories:

- Change School Organization
- Support Students Academically and Developmentally
- Strengthen the Professional Community

Changing these school features is expected to affect two aspects of the student experience:

- Quality of Teaching and Learning
- Supportive and Safe School Culture

Each of these five categories includes a set of measurable features employed across the 13 rigorously evaluated high school reform efforts mentioned above. For example, organizational changes to schools include small learning communities, faculty advisory programs, and freshman seminars—features intended to promote greater personalization for students in high school, stronger relationships among students and between students and adults, and an easier transition into high school. Table 1 presents the categories, their features, and definitions of features. See Appendix B for a definition of each feature and one or two examples from school models that included it.

## INFORMATION ON SPECIFIC REFORM STRATEGIES

The features included in the framework are not all represented equally in the models reviewed. To aid reformers in their use of the framework and in identifying specific strategies to employ, the sections that follow identify the features reformers most often leaned on to create change and then the features that have been shown to have a connection to improvements in student outcomes.

### Common Features Across High School Improvement Efforts

Some features included in the framework appeared in the models reviewed more often than others. Features that appeared more often across different reform efforts may represent ones that are viewed as feasible to implement in varying contexts; such features may therefore be more generally relevant. As mentioned above, common features may also represent ones that many reformers believe hold promise to improve high schools and the outcomes of students.<sup>5</sup>

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5. When documenting the prevalence of features, the team had to rely on the *intent* to implement or address a certain feature (that is, whether it was an explicit part of the model) in its reviews, not

**TABLE 1. Features of Reform Efforts in the Framework for High School Reform**

Category	Subcategory	Feature	Feature Definition
<b>School-Level Organizational Changes</b>		Small learning communities	Schools form/assign small groups of teachers/staff members who work with the same population of students consistently.
		Faculty advisory program	Teachers are paired with students to advise them and advocate for them.
		Freshman seminars	High schools provide seminars or designated time for ninth-graders, with a set schedule, with the intent of helping them adjust to high school. <sup>a</sup>
		Principal leadership	Principals are trained to become effective managers who clearly communicate with staff and make a priority of high-quality teaching.
<b>Features to Strengthen the Professional Community</b>	Teaching Culture	Teacher empowerment	Teachers are given leadership responsibilities and are encouraged to play important roles in setting goals and making decisions.
		Teacher professional development	Teachers receive professional development experiences that provide content support and teaching strategies.
		Teacher mutual support	Teachers work in teams to improve their instructional practices.
		Teacher evaluation	School leaders regularly observe classrooms and provide helpful recommendations on teaching.
<b>Features to Support Students Academically and Developmentally</b>	Structure and Support	Extra academic help	Struggling students can receive additional academic help sessions (throughout the day or after school).
		Tiered student support services	A comprehensive school reform strategy is combined with more targeted services for students who display high levels of need or “early warning indicators” related to areas such as attendance, behavior, or course performance.
		Smaller class size	Classes are reduced in size.
	Curriculum	Longer instructional time	Classes have extended periods to allow more time for instruction.
		Integration with college courses	Students can receive some type of college credit through the courses offered.
		Combined academic and career/technical courses	The curriculum includes both academic and career-oriented classes.
		Updated curriculum	Some aspect of the curriculum has been redesigned.
Teaching Practices	Instruction guided by data	Schools have clear measures of progress for student achievement and teachers use student data to improve instructional decisions.	

(continued)

**TABLE 1. (continued)**

Category	Subcategory	Feature	Feature Definition
		Teacher/parent communication	Teachers and school leaders emphasize regularly communicating with parents throughout the year about student behavior and learning needs, increasing parental engagement.
<b>Quality of Teaching and Learning</b>		Increased academic rigor	Schools and teachers develop challenging learning goals and set high standards for student work.
<b>Supportive and Safe School Culture</b>		Personal relationships with school staff members	Students feel adults at school know them, receive guidance and extra help from adults when necessary, and are comfortable reaching out to adults about their problems.
		Teacher/student respect	Adults and students in the school treat one another with respect.
		Supportive student Peers	Positive peer-to-peer relationships are encouraged among students.
		School safety	Schools provide a safe space for students, without fear of crime, violence, or gang activity.

SOURCE: This list is drawn from the studies cited in Appendix B.

NOTE: \*Small learning communities exist in reforms that do not have freshman seminars, but every reform that has a freshman seminar does also have small learning communities.

The 12 most prevalent features, those that appeared in at least half (7 or more) of the 13 reforms reviewed, are identified in the first column of Table 2. (For more on how the features appear in different reform efforts, see Box 1.) At least one feature within each category shows up in more than half of the reform models. The second column of Table 2 provides more detailed information about the representation of features across the 13 studies, ordering the features by their prevalence—those for Actions Schools Can Take in the top panel and those for Student Experience in the bottom panel. In the first panel, there is a broad range of Actions Schools Can Take in all reform efforts. Some features, such as updated curriculum, teacher professional development, teacher/parent communication, and principal leadership were included in over 60 percent of the studies. Other features, such as freshman seminars, teacher evaluation, combined academic and technical courses, faculty advisory programs (programs where faculty members are paired with students to advise them), and integration with college courses were employed much less frequently.

In contrast, the second panel on the Student Experience shows a more uniform approach: At least half of the reform efforts in the 13 studies included all five features related to changing

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whether the feature was implemented with quality or even if it was implemented at all. The studies varied in the quality of the implementation information provided, making it impossible to discuss the actual implementation of reform features in a consistent way.



**TABLE 2. Prevalence of Reform Features**

<b>Feature</b>	<b>Prevalence Across 13 Reviewed Studies (Percentage of Studies)</b>	<b>Important Contributor to Effects Identified in the SSC Analysis</b>
<b>Actions Schools Can Take</b>		
Updated curriculum	77	NA
Teacher professional development	69	Y
Teacher/parent communication	69	Y
Principal leadership	62	Y
Longer instructional time	54	NA
Teacher mutual support	54	Y
Small learning communities	54	NA
Extra academic help	46	NA
Teacher empowerment	46	Y
Instruction guided by data	46	Y
Smaller class size	38	N
Tiered student support services	31	NA
Freshman seminars	23	NA
Teacher evaluation	23	Y
Combined academic and career/technical courses	15	NA
Faculty advisory program	15	NA
Integration with college courses	8	NA
<b>Student Experience</b>		
Personal relationships with school staff members	92	Y
Increased academic rigor	85	Y
Teacher/student respect	77	Y
School safety	69	N
Supportive student peers	54	N

SOURCE: This list is drawn from the studies cited in Appendix B.

NOTE: Y = An important contributor to effects. N = Feature present in the SSC analysis, but not identified as an important contributor to effects. NA = Feature not present in the SSC analysis.

## BOX 1

### How the Features Appear in Different Reform Efforts

Though these 12 features appear in numerous reform efforts, they often vary at least somewhat in what they look like when implemented. For example, BARR (Building Assets Reducing Risks) and Diplomas Now both approach “teacher mutual support” through common planning time for core subject teachers and regular team meetings (typically weekly) to discuss students’ academic progress, assets, and challenges and to plan the support they will offer students. SEED Charter Schools emphasize teacher mutual support by bringing together staff members four times per year to review assessment results after students take interim assessments in English and math.

“Increased academic rigor” provides another example of how a feature can look different in practice in different reform efforts. In First Things First, teachers are expected to collaborate with one another to find and employ strategies that make classroom instruction more rigorous. In Boston Charter Schools, increased academic rigor is tied directly to graduation requirements: Schools implement more rigorous graduation requirements so that all their students are exposed to more college-level Advanced Placement courses. Ultimately, the application of each of these features can vary in any given reform and school. For more details see Appendix B.

the quality of teaching and learning and establishing a supportive and safe school culture. The high prevalence of the features in these categories suggests that these reform efforts sought to improve the academic and social experiences of students broadly rather than targeting only specific aspects of those experiences.

## CONNECTING FEATURES TO EFFECTS ON OUTCOMES

The last section discussed the prevalence and consistency of components across reform efforts. This section discusses the relationship between specific reform components and effects on student outcomes. Understanding which reform components may be effective at increasing student success can help schools or districts decide where best to direct limited resources in their efforts to improve high school education. However, few studies have the data or research design to isolate how specific reform components affect student outcomes and which components are most effective. MDRC’s study of New York City’s Small Schools of Choice (SSCs) offered a rare opportunity to analyze a multifaceted model rigorously and identify the features most responsible for its large, positive effects on students.<sup>6</sup>

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6. Appendix C discusses a few synthesis reports in which the authors attempted to link efforts on student outcomes to reform components.

## Identifying Features Contributing to Success in New York City

New York City’s Small Schools of Choice were created during the city’s Children First era of school reform (roughly 2002 through 2008), a notably successful comprehensive high school reform effort in New York City. As part of this effort, the New York City Department of Education, with the support of the Bill and Melinda Gates Foundation and other philanthropies, closed many large high schools (often serving 2,000 or more students) with graduation rates below 45 percent and opened over 200 small high schools in their place. These new high schools served between 80 and 100 students per grade, made a priority of serving students from the communities in which they were located, and did not screen students based on their previous academic achievement. MDRC’s evaluation of this effort found that among students in the study sample, enrollment in an SSC led to students graduating from high school at a rate 9.5 percentage points higher than their counterparts who did not enroll in an SSC.<sup>7</sup> Further follow-up data collection demonstrated that attending an SSC also increased students’ college enrollment immediately after high school graduation by 7.4 percentage points. Students of all backgrounds experienced these effects.<sup>8</sup>

The SSC reform model includes one or more features in all five categories in the Framework for School Improvement. These components are identified in the third column of Table 2.<sup>9</sup> MDRC capitalized on the study’s rigorous design to explore the relationship between differences in exposure to various SSC features and differences in student outcomes.<sup>10</sup> The research team found that several features appear to be particularly effective at increasing graduation rates: school leadership quality, teacher empowerment, teacher professional development, teacher mutual support, teacher evaluation, instruction guided by data, teacher/parent communication, increased academic rigor, personal relationships with school staff members, and teacher/student respect.<sup>11</sup>

The following features identified as important contributors in the SSC analysis of features associated with positive effects on student outcomes were also some of the most prevalent features identified in the last section:<sup>12</sup>

1. Personalized relationships with school staff members

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7. Bloom and Unterman (2013).

8. Unterman and Haider (2019).

9. The authors cross-referenced the definitions of features used in this report with those of the reform components included in the SSC analysis of features associated with positive outcomes for students. They were well aligned, with many of the features in this report defined similarly or identically to those in the SSC analysis. The report therefore continues to use the language of Table 1.

10. Bloom, Unterman, Zhu, and Reardon (2020) capitalize on naturally occurring lotteries for SSCs and employ a Multi-site Multiple-Mediator Instrumental Variables approach to estimate the effect of each mediator on student outcomes.

11. Bloom, Unterman, Zhu, and Reardon (2020).

12. “Commonly” identified components were components present in 6 or more (that is, 50 percent or more) of the 12 reforms used to define the framework above, excluding SSCs.

2. Increased academic rigor
3. Teacher/student respect
4. Teacher professional development
5. Teacher/parent communication
6. Principal leadership
7. Teacher mutual support<sup>13</sup>

These seven components not only appear to be particularly effective at improving student outcomes, but also appear to be replicable given their representation in numerous reform models and contexts outside of the New York City small high schools. New and existing reforms may consider directing resources toward implementing these features of school reform that have demonstrated potential to improve student outcomes.

Of these features, which are the most effective? Could the implementation of certain features possibly give schools more “bang for their buck”? To begin to answer this question, an analysis examined the seven individual SSC reform features and ranked them according to their estimated effects on high school graduation rates.<sup>14</sup> It found that the “principal leadership” feature was the biggest contributor to improved high school graduation rates, followed closely by measures of teacher/student respect. The remaining five features all contributed similarly to improving graduation rates.<sup>15</sup>

Of note, some of the SSC features with the strongest relationships to improved graduation rates appeared less commonly across other comprehensive reforms. For example, “teacher empowerment” and “teacher evaluation,” the features with the second- and third-greatest

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13. The “small learning communities” component was not explicitly measured in the SSC analysis of features associated with positive effects on student outcomes, so it is not included on this list. However, small learning communities are central to the SSC model, and were implemented in over 50 percent of the reforms used to define the framework. Therefore, small learning communities may also be considered a replicable component with the potential to improve student outcomes.
  14. It is important to note that this ranking of components is exploratory in nature; the individual components are highly correlated, and the SSC analysis did not attempt to parse their individual effects. In addition, a large portion of the variation in the SSC effect on high school graduation was still unexplained after these potential predictors were analyzed. See Bloom, Unterman, Zhu, and Reardon (2020).
  15. On average, one standard deviation of improvement in leadership quality can increase graduation rates by 4.6 percentage points. Teacher/student respect also demonstrated a large single-feature improvement in effects, with one standard deviation of improvement in teacher/student respect potentially resulting in a 4.0 percentage point increase in graduation rates. Teacher mutual support had the lowest single-feature effect of the seven components, at only 2.9 percentage points. The remaining four components had single-feature effects between 3.5 percentage points and 3.7 percentage points. See Bloom, Unterman, Zhu, and Reardon (2020).

influence on graduation rates in the SSC analysis, appeared in 42 percent and 17 percent of the other comprehensive reforms reviewed, respectively.<sup>16</sup> Though these features may currently be less common, schools and districts that have the ability could consider ways to integrate them into their reform efforts.<sup>17</sup>

## APPLICATION AND CONSIDERATIONS FOR THE FRAMEWORK

This analysis has explored the prevalence of different features across multiple comprehensive high school reform models. For example, as noted previously, many models include features that aim to change students' academic and social experiences. There is agreement that providing strong experiences in these two areas is important to the improvement of high school student outcomes. Thus, in reviewing their own efforts to strengthen high schools, policymakers and practitioners may want to consider seriously how they are addressing these aspects of the high school student experience.

In addition, the last section focused on what research suggests are the features that are associated with better student outcomes. Policymakers and practitioners can review whether their reform efforts include features that have evidence of improving students' outcomes, and can consider adding features backed by evidence that they are not currently implementing.

The framework's incorporation of features found in many reform efforts should make it applicable to a wide range of contexts and thus accessible to many decision-makers involved in strengthening high school education. Below are some questions that may be helpful when beginning this work:

- **How do your current programs and initiatives line up with the features described in the framework?** This framework organizes and offers a set of features of reform efforts. It is likely that some of your existing programs and practices include some of these features. Comparing the features of your programs with those in the framework might help you identify where your efforts may be complementary or additive and where they may be duplicative, which could help you make decisions about using resources more efficiently. Identifying where your current efforts align with promising or evidence-based features will offer insights about what is most likely to be benefiting students and thus valuable to continue.

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16. Specifically, a standard deviation unit increase in teacher empowerment is associated with a 4.4 percentage point increase in students' high school graduation rates. See Bloom, Unterman, Zhu, and Reardon (2020).

17. While the New York City SSC evaluation was able to capitalize on a special and unusual data set to explore the relationships between features of reform efforts and effects on outcomes, there are a few other notable projects that have attempted to identify these relationships as well. Appendix C describes these efforts and their findings.

- **Where are there gaps in your efforts to improve your schools?** Having identified which features of your current reform efforts appear in the framework, you might see where you could expand your work—add actions or experiences that you are not addressing. If you home in on places where there are evidence-based solutions (that is, features shown to have been effective in improving student outcomes), you may be more likely to strengthen what you are doing. Then you can plan how you will implement the necessary changes you want to take on.
- **Do you have a plan for monitoring the implementation of changes?** Through monitoring, you can assess whether those responsible for implementing change are doing so as intended or require additional support. In addition, you can plan to collect or review relevant data that capture whether expected changes to school structures and practices are happening, and can do the same for expected changes to educator and student experiences. Such review can inform whether adjustments need to happen to strengthen implementation.
- **Are you prepared to assess whether you improve the educational outcomes of students?** Schools and districts regularly track the academic performance of their students. Measures used include credits earned for courses, course grades, performance on standardized tests, numbers of students who graduate from high school, and sometimes numbers of students who transition into college or work opportunities after high school. You could benefit from clearly identifying which student outcomes you expect your reforms to affect soon and which may emerge later, and then ensuring that you have or can collect the relevant data about those outcomes.
- **Do you have support in the district and the community for your intended reforms?** This document does not discuss the top column in the framework, which calls for district and community support for change. Efforts must be taken to bring all stakeholders into conversations about education reform: community members, teachers, parents, students, and nonprofit partners. Other frameworks also point out the value of stakeholder engagement and strong school-community ties.<sup>18</sup> It may be that a tool such as this framework can help facilitate conversations with stakeholders that explicitly connect proposed actions with desired student experiences and outcomes.
- **Have you thought through how you can sustain changes you make if they prove to be successful?** A few of the studied reform efforts, such as the National High School Center, strongly value planning for sustainability—making sure that there is a pathway for continuing reform efforts if they are effective. For example, if you are planning to use temporary grant funds to initiate change, you should consider what the longer-term costs or resource requirements of the reform effort might be once it is up and running at a steady state (that is, after you have gotten past the startup costs) and how those costs

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18. See, for example, Connell and Klem (2000); Bryk (2010); and National High School Center (2011).

could be underwritten using existing or expected funding streams or maintained using your existing staff.

Finally, as noted at the start of this document, although the average national high school graduation rate has improved over time, inequities along lines of race and class persist, and have been exacerbated by the COVID-19 pandemic.<sup>19</sup> If the goal of reform efforts is success for all students—which requires reducing disparities in educational outcomes between groups—reformers must take care to capture the high school experiences of all students at each decision point. Students with different backgrounds and different levels of academic achievement may have vastly different experiences within the same context. In using the Framework for School Improvement, practitioners and policymakers should explicitly consider how the actions they take can address current and past inequities in access to educational support (that is, the quality of students’ school experiences) and in educational outcomes.

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19. Dorn, Hancock, Sarakatsannis, and Viruleg (2020).





## APPENDIX

# A

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## Literature Review Methodology



This report synthesizes research on recently studied, comprehensive high school reform models. To be eligible for the review, each model had to meet the following four criteria:

1. It was a comprehensive school reform model, rather than an intervention that targeted one population of students or type of behaviors within a school.
2. It had been used in more than one school.
3. It had been subject to at least one quasi-experimental or experimental evaluation assessing its effects on high school students' outcomes.
4. The results of that evaluation were published between 1995 and 2020.

The review started by examining MDRC's own high school research and searching well-known databases (the U.S. Department of Education's What Works Clearinghouse and Education Resources Information Center). Next, it shifted toward a more general internet search using terms such as "high school reform" and "comprehensive school reform." The search yielded multiple studies of comprehensive reforms as well as a 2006 Comprehensive School Reform Quality Center report that reviewed multiple school reform research studies.<sup>1</sup> The team also reviewed the Investing in Innovation (i3) summary report (2018), to determine whether any of the 67 i3 evaluations included additional reform models that fit the criteria.<sup>2</sup> Last, the team shared the list of reforms with other MDRC staff members who study school reform and with the research grant's Bill and Melinda Gates Foundation program officer so they could offer suggestions for any high school reform efforts that may have been missing from the list. This process yielded a total of 35 high school interventions of interest. However, many of the interventions did not meet the inclusion criteria. The most common reasons for not meeting the criteria were not being a comprehensive, whole-school reform (for example, being a program that targeted specific types of students), not having a rigorous evaluation conducted after 1995, and having evaluations focused only on middle school outcomes (for reforms that operated in both middle school and high school). Ultimately, of the 35 interventions initially identified, 13 reform models met all four criteria and were included in the analysis. A list of models and citations of the literature consulted appear in Appendix B.

The most intensive period of the literature review occurred from the winter of 2018 through the spring of 2019, though the research team continued to identify high school reform studies into 2020.

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1. Comprehensive School Reform Quality Center (2006).
2. Boulay et al. (2018).



## APPENDIX

# B

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### How Features in the Framework Operate in Practice in the Reform Efforts in This Review



## Small Learning Communities

**Feature definition: Schools form/assign small groups of teachers or staff members who work with the same population of students consistently.**

Model	Feature in Practice
Career Academies	Career Academies are operated as a “school-within-a school” structure in which each school engages students in an academic and technical curriculum related to a career theme. Each Academy is organized as a small learning community that serves around 150 to 200 students from grade 9 or 10 through grade 12. See Kemple and Snipes (2000).
Diplomas Now	The Diplomas Now intervention works with school leaders to reorganize schools into small learning communities where teachers work consistently with the same students, allowing teacher teams to know the same students so they can collaborate and find effective ways to teach and support them. See Corrin et al. (2014).

## Faculty Advisory Program

**Feature definition: Teachers are paired with students to advise them and advocate for them.**

Model	Feature in Practice
First Things First	First Things First has a Family Advocate System that pairs every student with a staff member who meets with the student during a regularly scheduled period not only to monitor the student’s academic, social, and emotional progress, but also to advocate for the student when necessary. See Quint, Bloom, Rebeck Black, and Stephens (2005).
Small Schools of Choice	Small Schools of Choice has a counseling model that matches advisers (teachers, administrators, and other adults in the building) with small groups of around 10 to 15 students. Advisers meet with their students regularly to address academic and social/emotional issues. See Bloom and Unterman (2014).

## Freshman Seminars

**Feature definition: High schools provide seminars or designated time for ninth-graders, with a set schedule, with the intent of helping them adjust to high school.**

Model	Feature in Practice
Talent Development	Talent Development offers freshman seminars for first-semester ninth-graders that provide students with techniques to develop academic skills (studying, note-taking, and time management) and social skills (for school and life outside of school). See Kemple, Herlihy, and Smith (2005).
SEED	SEED charter schools offer ninth-grade Student Life activities to foster skills necessary for success in high school and beyond, such as planning ahead, using anger-control strategies, and maintaining strong self-esteem. See Unterman, Bloom, Byndloss, and Terwelp (2016).

## Principal Leadership

**Feature definition: Principals are effective managers who clearly communicate with staff members and make a priority of high-quality teaching.**

Model	Feature in Practice
Building Assets Reducing Risks (BARR)	School leaders are directly involved in the day-to-day implementation of the BARR model, as principals and administrators are encouraged to make decisions, support teachers, and be involved in students' academic and nonacademic success. See Bos, Dhillon, and Borman (2019).
First Things First	The First Things First model includes a school-improvement facilitator who works closely with the principal. The principal is then able to support the reform more effectively and maintain staff enthusiasm as the staff becomes acquainted with the intervention and begins reorganizing the school. See Quint, Bloom, Rebeck Black, and Stephens (2005).

## Teacher Empowerment

**Feature definition: Teachers are given leadership responsibilities and are encouraged to play important roles in setting goals and making decisions.**

Model	Feature in Practice
Career Academies	Teachers in Career Academies are given the ability to influence instructional and administrative decisions. See Kemple and Snipes (2000).
Knowledge Is Power Program (KIPP)	One of KIPP's seven guiding principles is a belief that empowered leaders and teachers are essential to the development and operation of successful schools. See Woodworth et al. (2008).

## Teacher Professional Development

**Feature definition: Teachers receive professional development experiences that provide content support and teaching strategies.**

Model	Feature in Practice
Oakland Accelerates	In the Oakland Accelerates schools, counselors, teachers, and other staff members are offered professional development through workshops, webinars, conferences, summer institutes, and additional forms of training. See Toussaint and Chang (2016).
BARR	BARR schools include hands-on professional development opportunities for teachers and school administrators that help them learn to communicate effectively with each other about students' progress, assets, and barriers to success, and that help them learn to identify and implement specific academic interventions to help their students succeed. See Bos, Dhillon, and Borman (2019).



## Teacher Mutual Support

**Feature definition: Teachers work in teams to improve their instructional practice.**

Model	Feature in Practice
Career Academies	Teachers in Career Academies commit to meeting regularly, so they are able to discuss and make joint decisions regarding instruction, curriculum content, and relevant administrative policies. See Kemple and Snipes (2000).
SEED	In SEED schools, teachers and other student-serving staff members meet in groups to discuss results of the English and math assessments students take four times per year. They work together to get a comprehensive understanding of each student's progress, then teachers use the results to develop lesson plans and reteach skills as needed. See Unterman, Bloom, Byndloss, and Terwelp (2016).

## Teacher Evaluation

**Feature definition: School leaders regularly observe classrooms and provide helpful recommendations on teaching.**

Model	Feature in Practice
Oakland Accelerates	Teachers in Oakland Accelerates schools are given Advanced Placement coaching and professional learning planning time, which is followed by two days of classroom walkthroughs with a structured observation rubric. In this way, Oakland Accelerates works to ensure that lessons from the coaching are being applied in the classroom effectively. See Toussaint and Chang (2016).
Boston Charter Schools	Boston Charter schools often draw on Teach for America corps members and alumni to staff the school, and provide consistent, ongoing evaluation to teachers. See Cohodes, Setren, and Walters (2021).

## Extra Academic Help

**Feature definition: Struggling students can receive additional academic help sessions (throughout the day or after school).**

Model	Feature in Practice
Project Graduation Really Achieves Dreams (GRAD)	The Project GRAD model provides high school students with a college-based summer academic enrichment program in reading, writing, math, and science, with remedial activities. See Snipes, Holton, and Doolittle (2006).
SEED	SEED schools offer a Tutoring Enrichment Program with volunteer and peer tutors to help students who want or need additional help. See Unterman, Bloom, Byndloss, and Terwelp (2016).

## Tiered Student Support Services

**Feature definition: An intervention combines a comprehensive school reform strategy with more targeted services for students who display high levels of need or “early warning indicators” related to areas such as attendance, behavior, or course performance.**

Model	Feature in Practice
Talent Development	The Talent Development model includes a “Twilight Academy,” an after-hours program offered as an alternative to the regular school day for students who may benefit from additional attention or from the modified schedule (for example, students struggling with attendance or discipline, or students returning to school from incarceration or suspension from another school). See Kemple, Herlihy, and Smith (2005).
BARR	The BARR intervention refers students who are persistently failing courses or exhibiting significant attendance or behavior problems to risk-review meetings with their counselors, school administrators, and other support staff members. At the meetings, they work together to determine what services or other forms of support are necessary moving forward (which are then monitored on an ongoing basis). See Bos, Dhillon, and Borman (2019).

## Smaller Class Size

**Feature definition: Classes are reduced in size.**

Model	Feature in Practice
First Things First	One of the seven critical features of First Things First is structural changes, which include lowering the student-adult ratio to 15:1 during language arts and math classes for at least 10 hours per week. See Quint, Bloom, Rebeck Black, and Stephens (2005).
Boston Charter Schools	Boston Charter Schools make class sizes smaller than those at traditional public schools to give students more opportunity for personal attention. See Cohodes, Setren, and Walters (2021).

## Longer Instructional Time

**Feature definition: Classes have extended class periods to allow more time for instruction.**

Model	Feature in Practice
Small Schools of Choice	Longer instructional blocks to encourage interdisciplinary work was a required proposal element for the creation of new Small Schools of Choice, as specified by the New York City Department of Education. See Bloom and Unterman (2014)
Green Dot	One of the six basic tenets of the Green Dot Public Schools model is to extend instructional time for students by keeping schools open later. See Herman et al. (2012).

## Combined Academic and Career/Technical Courses

**Feature definition: The curriculum includes both academic and career-oriented classes.**

Model	Feature in Practice
Career Academies	Each Career Academy organizes its academic and occupational curriculum around a specified career theme and establishes partnerships with local employers in the field to provide real-world learning experiences to its students. See Kemple and Snipes (2000).

## Integration with College Courses

**Feature definition: Students can receive some type of college credit through the courses offered.**

Model	Feature in Practice
Early College High School	The Early College High School initiative partners with colleges to facilitate dual enrollment (or college during high school) that allows students typically underrepresented in college to earn college credits while still in high school. See Song, Zeiser, Atchison, and Brodziak de los Reyes (2021).

## Updated Curriculum

**Feature definition: An intervention includes a redesigned curriculum.**

Model	Feature in Practice
BARR	The BARR model includes the BARR I-Time Curriculum, which focuses on addressing students' social and emotional development and related issues. See Bos, Dhillon, and Borman (2019).
SEED	SEED follows district requirements for high school graduation, but to prepare students for college and beyond, it also requires students to earn additional credits with a curriculum that emphasizes higher-order thinking and problem-solving. See Unterman, Bloom, Byndloss, and Terwelp (2016).

## Instruction Guided by Data

**Feature definition: Schools have clear measures of progress for student achievement and teachers use student data to improve instructional decisions.**

Model	Feature in Practice
Oakland Accelerates	Oakland Accelerates schools makes an accountability system based on data one of its priorities, with a goal of supporting a district-wide culture of making decisions using data. The system identifies indicators of college readiness, and monitors progress relative to those indicators as schools and students work toward college and career-readiness goals. See Herman et al. (2012).
Diplomas Now	Teachers, administrators, and Diplomas Now staff members meet regularly to review and monitor students' attendance records, behavior reports, and course performance in math and English. These meetings help them to determine which students need extra support and to plan subsequent interventions for students. See Corrin et al. (2014).

## Teacher/Parent Communication

**Feature definition: Teachers and school leaders emphasize obtaining information from and regularly communicating with parents throughout the year about student behavior and learning needs, increasing parental engagement.**

Model	Feature in Practice
First Things First	In the First Things First model, the faculty advocates who are paired with students (see the Faculty Advisory Program component) are required to check in weekly with each student and to meet with the students and their parents or guardians twice a year at minimum. See Quint, Bloom, Rebeck Black, and Stephens (2005).
Project GRAD	The Project GRAD model promotes parental and community involvement, including annual Walks for Success where principals, teachers, and staff members visit students' homes to discuss the program with parents and students. See Snipes, Holton, and Doolittle (2006).

## Increased Academic Rigor

**Feature definition: Schools and teachers develop challenging learning goals and set high standards for student work.**

Model	Feature in Practice
Small Schools of Choice	The competitive proposal process to create Small Schools of Choice emphasized academic rigor as a common design principle across schools. Each school was expected to align its curriculum with New York State graduation requirements but was also encouraged to develop college-ready standards that promoted higher-order skills such as critical thinking. See Bloom and Unterman (2014).
Early College High School	Early College High Schools motivate students to succeed by tying the schools' rigorous high school curricula to earning college credit. The initiative emphasizes "rigor" as a core principle, with the intention of improving students' content knowledge and learning habits. See Song, Zeiser, Atchison, and Brodziak de los Reyes (2021).

## Personal Relationships with School Staff Members

**Feature definition: Students feel adults at school know them, receive guidance and extra help from adults when necessary, and are comfortable reaching out to adults about their problems.**

Model	Feature in Practice
KIPP	KIPP schools hope to create a personalized learning experience for students by monitoring academic progress and subsequently tailoring instruction to each student's needs, skills, and interests. See Woodworth et al. (2008).
BARR	BARR views the development of improved student-teacher and teacher-teacher relationships as the primary mechanism through which the model hopes to achieve academic objectives. The model hopes to affect these relationships by using a comprehensive approach that celebrates the strengths of each student and builds relationships more effectively. See Bos, Dhillon, and Borman (2019).

## Teacher/Student Respect

**Feature definition: Adults and students in the school treat one another with respect.**

Model	Feature in Practice
Green Dot	Green Dot schools try to foster a culture of teacher-student respect by encouraging the recognition of all students and their families as individuals, and soliciting their participation in shaping the school's curriculum and work in the community. See Herman et al. (2012).
SEED	In SEED schools, students are surrounded by caring adults (teachers, Student Life staff members, tutors, etc.) who help them prepare for success in college, therefore promoting an environment of mutual respect. See Unterman, Bloom, Byndloss, and Terwelp (2016).

## Supportive Student Peers

**Feature definition: Positive peer-to-peer relationships are encouraged among students.**

Model	Feature in Practice
Diplomas Now	The Diplomas Now model reorganizes classes so students remain with the same group of peers throughout the day, allowing them to see the same students in their classes and become known to one another. See Corrin et al. (2014).
Early College High School	Early College High Schools intend to establish a strong college-going culture in their schools, so students feel like their peers as well as their teachers want them to enroll in and complete college after graduation. See Song, Zeiser, Atchison, and Brodziak de los Reyes (2021).

## School Safety

**Feature definition: Schools provide a safe space for students, without fear of crime, violence, or gang activity.**

Model	Feature in Practice
Talent Development	The Talent Development high school conceptual framework specifies the creation of a "safe and orderly" school environment for students. See Kemple, Herlihy, and Smith (2005).
Project GRAD	Project GRAD schools seek to create a safe and orderly classroom environment that is conducive to learning through their teacher curricula of Consistency Management and Cooperative Discipline. They also seek to strengthen ties between the school and the community with programs such as Communities In Schools or Campus Family Support. See Snipes, Holton, and Doolittle (2006).



## APPENDIX

# C

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## Other Attempts to Quantify Relationships Between Reform Features and Effects on Outcomes





The research team reviewed these reports: (1) *Pathways to Change: Learning From Exemplary QEIA [Quality Education Investment Act] Schools*,<sup>1</sup> (2) *Learning from the Successes and Failures of Charter Schools*,<sup>2</sup> (3) *Lessons Learned in Massachusetts High School Turnaround: A Resource for High School Leaders*,<sup>3</sup> and (4) *Persistence to Graduation*.<sup>4</sup> In these reports the authors look at various types of schools across multiple locations (California, New York City, Houston, Denver, Massachusetts, and Kentucky) and assess which features are found in successful and less successful schools. Each report presented a different analytical approach.

In Appendix Table C.1 their conclusions are presented alongside the findings from the Small Schools of Choice (SSC) analysis, as well as the list of commonly implemented high school reform components. As shown in the table, six components were identified as important features of reform in at least three of the four reports: principal leadership, instruction guided by data, increased academic rigor, personal relationships with school staff members, teacher empowerment, and teacher mutual support. The four reports also name extra academic help and longer instructional time as important features of school reform; these features were not included in the SSC analysis.

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1. Malloy and Nee (2013).
  2. Fryer (2012).
  3. Kistner, Melchior, Marken, and Stein (2017).
  4. Stone and Martin (2019).

**APPENDIX TABLE C.1. Prevalence of Reform Features in This Analysis and Others**

<b>Feature</b>	<b>Prevalence Across 13 Reviewed Studies (Percentage of Studies)</b>	<b>Important Contributor to Effects Identified in the SSC Analysis</b>	<b>Identified as Important in 3 or 4 of the 4 Reports on Other Initiatives</b>
<b>Actions schools can take</b>			
Updated curriculum	77	NA	
Teacher professional development	69	Y	
Teacher/parent communication	69	Y	
Principal leadership	62	Y	X
Longer instructional time	54	NA	X
Teacher mutual support	54	Y	X
Small learning communities	54	NA	
Extra academic help	46	NA	X
Teacher empowerment	46	Y	X
Instruction guided by data	46	Y	X
Smaller class size	38	N	
Tiered student support services	31	NA	
Freshman seminars	23	NA	
Teacher evaluation	23	Y	
Combined academic and career/technical courses	15	NA	
Faculty advisory program	15	NA	
Integration with college courses	8	NA	
<b>Features of the student experience</b>			
Personal relationships with school staff members	92	Y	X
Increased academic rigor	85	Y	X
Teacher/student respect	77	Y	
School safety	69	N	
Supportive student peers	54	N	

SOURCES: Malloy and Nee (2013); Fryer (2012); Kistner, Melchior, Marken, and Stein (2017); Stone and Martin (2019); Unterman and Haider (2019).

NOTE: Y = An important contributor to effects. N = Feature present in the SSC analysis, but not identified as an important contributor to effects. NA = Feature not present in the SSC analysis. X = Feature identified as important in three or four of the four reports reviewed on other initiatives.

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# ABOUT MDRC

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