

# Evidence-Based Interventions: A Guide for States

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## Abstract

The new Every Student Succeeds Act offers states flexibility to create new approaches to school accountability and to design appropriate interventions for schools in need of assistance. The law states that the interventions should be “evidence-based” and defines the kinds of research evidence states need to provide when choosing strategies for improvement. This brief analyzes the research base and identifies the conditions under which four commonly used interventions have been found to be effective when well-implemented. The four areas are: high-quality professional development, class-size reduction, community schools and wraparound services, and high school redesign.

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In keeping with the historical purpose of the Elementary and Secondary Education Act (ESEA), the Every Student Succeeds Act (ESSA)—the reauthorization of ESEA signed into law in December 2015—requires states to direct resources to the lowest-performing schools, leveraging equity by providing support to close achievement gaps.

Unlike its predecessor, the No Child Left Behind Act (NCLB), ESSA does not prescribe the interventions for these schools. Instead, the new law gives states more flexibility, recognizing that school circumstances differ and the one-size-fits-all remedies in NCLB were not appropriate in every case. States are free to determine the interventions that make sense for particular schools.

At the same time, the law does spell out some guidelines for interventions. Specifically, the law states that the interventions should be “evidence-based” and defines the kinds of evidence states can use when choosing strategies for improvement. The goal is to increase the likelihood that the interventions will succeed in raising performance and closing gaps.

One key issue is that strategies for improving performance—such as professional development investments or class-size reductions—have generally proved successful only when implemented effectively and in contexts that can benefit from what they have to offer.

This brief provides an overview of four commonly used interventions that, when well-implemented, have been shown to raise performance, particularly for historically underserved students. It analyzes the research base and identifies the conditions under which they have shown to be effective. The four areas are:

- high-quality professional development,
- class-size reduction,
- community schools and wraparound services, and
- high school redesign.

## What ESSA Requires

ESSA requires states to develop plans to support the “lowest performing” 5% of all public schools that receive Title I funding, all

public high schools that fail to graduate one-third or more of their students, and any other categories that a state deems appropriate. These schools must be identified at least once every three years. For schools that are so identified, school districts must complete a **comprehensive support and improvement plan** that:

- is informed by the indicators and long-term goals from the state’s accountability system,
- includes evidence-based interventions,
- is responsive to a school-level needs assessment, and
- identifies resource inequities that will be addressed.

The plan must then be approved by the school, district, and state education agency and periodically monitored and reviewed by the state education agency. Using the list of low-performing schools, the state must identify schools where there are consistently underperforming subgroups of students. The district is then responsible for supporting the school-level “targeted support and improvement plan.” Similar in structure to the comprehensive plan, the targeted support plan requires evidence-based interventions and must be approved and monitored by the school district.

## What Interventions Show Promise?

Following a review of information and a diagnostic process, states have an obligation to help schools improve by adopting evidence-based interventions or supports. ESSA defines “evidence-based” as an activity, strategy, or intervention that demonstrates a statistically significant effect on improving student outcomes (or other relevant outcomes) based on strong, moderate, or promising evidence from at least one well-designed and well-implemented experimental or quasi-experimental study, or a rationale based on high-quality research findings or a positive evaluation that suggests the intervention is likely to improve outcomes. States have flexibility in allowing schools and districts to determine which evidence-based interventions are most likely to work in which contexts and with which students.

A large body of educational research has explored practices that are effective (and ineffective) for improving student outcomes. This research can empower state and local policymakers to adopt proven educational interventions that best address the unique context of their local education system. This brief treats only four kinds of commonly used interventions. A future publication will treat the range of possible strategies more fully.

## High-Quality Professional Development

Clearly, changing curriculum and teaching practices requires investments in teachers’ professional learning, and some schools have shown significant achievement gains by making such investments strategically.<sup>1</sup> However, not all professional development (PD) is designed in ways that produce these effects.

A key feature of effective PD is that teachers work together on a particular set of practices over a sustained period of time. Of nine well-designed experimental or quasi-experimental investigations, Yoon and colleagues found that 14 hours or less of professional development on a given topic showed no significant effects on student learning.<sup>2</sup> The efforts that showed positive and significant effects on student achievement ranged from 14 to 100 hours, with an average of 49 hours.<sup>3</sup>

The greatest improvements in student achievement have been found to be associated with PD approaches that:

- focus on deepening teachers’ content knowledge and instructional practices;<sup>4</sup>
- function as a coherent part of a school’s improvement efforts—aligned with curriculum, assessments, and standards—so that teachers can implement the knowledge and practices they learn in their classrooms;<sup>5</sup>

- occur in collaborative and collegial learning environments in which teachers participate in professional learning and together grapple with issues related to new content and instructional practices;<sup>6</sup>
- provide authentic activities rooted in teachers' inquiry and reflection about practice within the context of the curriculum and students they teach;<sup>7</sup>
- link to analysis of teaching and student learning, including the formative use of assessment data;<sup>8</sup> and
- are supported by coaching, modeling, observations, and feedback.<sup>9</sup>

States and districts will want to be informed by research that highlights the critical components of PD most likely to markedly improve teachers' skills and students' outcomes.

## **Class-Size Reduction**

Reducing class size can be an effective strategy for improving student outcomes under some circumstances. However, the effects appear to vary depending on the age and character of the students and the extent of class-size reduction pursued. And they assume that other variables, such as the quality of teachers and curriculum, remain constant.

For example, a meta-analysis of 77 studies exploring the effects of class size found that smaller class sizes were associated with improved student achievement, with the greatest effects when certain smaller class thresholds were reached. For example, reducing a class size of 40 students to a class of no more than 20 students, or a class of 25 students to a class of 10–15 students, produced the greatest gains in student achievement.<sup>10</sup>

Similarly, the well-known experimental study of Tennessee's Project Student-Teacher Achievement Ratio (STAR) found that reducing class sizes below certain threshold levels in kindergarten through third grades improved student achievement, with benefits persisting through at least five years after being assigned a smaller class.<sup>11</sup> In particular, small classes of fewer than 18 students made greater gains in their achievement on standardized tests than students in regular-sized classes (22–25 students). Importantly, the effect of being in a small class was nearly twice as large for students of color in comparison to their white peers. Test score gains were greatest for children in kindergarten and first grade, with persistent long-term effects on a variety of academic outcomes in middle and high school.<sup>12</sup>

Studies of Wisconsin's statewide class-size reduction experiment found that reducing student-teacher ratios in kindergarten through third grade to fewer than 15 students per teacher (as compared to ratios of 21:1 and 25:1) was associated with improved student achievement. The largest benefits from smaller class sizes were experienced by African-American students and students in urban districts with large proportions of low-income students.<sup>13</sup>

In sum, positive results, especially for low-income students and students of color, have been found in the literature when class-size reduction programs are well-designed, meet a relatively low threshold of class size (in the vicinity of 15 to 18 students), and are implemented in the early grades.

## **Community Schools and Wraparound Services**

A community school is both a physical place and a set of partnerships between the school and other community resources.<sup>14</sup> Community schools take on a results-focused integrated approach that links high-quality academics with health and social services, youth and community development, and community engagement. Particularly in schools serving low-income students, the introduction of community school models and wraparound services has been found to improve student outcomes.<sup>15</sup>

The rationale for a community school is that students need more than just high-quality instruction to achieve academic and personal success. Children need access to housing, food, and health care, as well as social and learning supports. In addition, parents and the broader community need coordinated, one-stop services so that they can easily receive assistance that ultimately supports children’s development. Consequently, many community schools offer on-site clinics that provide physical and mental health care, social welfare services, before and after-school care, tutoring and mentoring, preschool, a focus on social-emotional learning and positive discipline approaches, and parent and community engagement.<sup>16</sup> In addition, many of these services are open to all community members during the day, evening, and weekend.<sup>17</sup>

Research about the effectiveness of community schools and other approaches that ensure a wide range of services for children often finds that such schools are associated with improved student outcomes, especially for the most socioeconomically disadvantaged students.<sup>18</sup> Of course, it is not the “community schools” label that makes a difference: a critical mass of key features must be in place and well-implemented to derive these effects.

In addition to overarching studies, certain features of such schools have been studied individually, showing positive influences on outcomes. For example, research has found significant student learning gains as a result of expanded learning time, including time for tutoring.<sup>19</sup> In addition, the frequency of parent, family, and community engagement is positively associated with improved student academic achievement, lower rates of grade retention, fewer years that students spend in special education, and gains in English language development exam scores for English learner students.<sup>20</sup> Wraparound academic, health, and social services are associated with improved academic outcomes, especially for the most vulnerable students.<sup>21</sup> Social-emotional learning supports and positive behavioral interventions, such as restorative justice practices, are associated with increased student academic success and lower rates of suspensions, expulsions, and dropouts.<sup>22</sup>

One approach, the Turnaround for Children (TFC) model, addresses these goals in underperforming schools through capacity-building and culture change. TFC’s model is an integrated set of practices and supports that addresses students’ social, emotional, and physical well-being, while also transforming school culture. Creating a focus on child development aimed at reversing poverty-induced traumas that impede learning, TFC sets up a partnership between the school and a community-based mental health provider. It then deploys a team consisting of a social work consultant (veteran clinical social worker), instructional coach (master teacher), and program director (experienced school administrator) to:

- build a high-capacity student support system that gets help to all children, including those with intense needs, either in their schools or in partnership with community-based mental health providers;
- train all teachers in proven classroom strategies that foster a safe, engaging learning environment and strong student–teacher relationships; and
- work with school leaders to drive school-wide improvement aligned to Common Core State Standards and district guidelines with the intention of creating a high-performing culture that involves the entire school community.

Data from TFC schools in New York City shows dramatic gains in math and English language arts scores, as well as greater safety, a decrease in suspensions, and a decrease in teacher absences and turnover.<sup>23</sup>

## High School Redesign

The effective redesign of secondary schools is another intervention strategy supported by research. While school size and structural features are potential tools to help schools support student attachment and learning, the results they produce depend in substantial part on how these elements are implemented.

Effective redesigned schools share a number of features that influence student achievement, including personalization, a shared school mission focused on high-quality student learning, a strong core curriculum for all students, high-quality “authentic” instruction, and a professional community.<sup>24</sup> While the redesign strategies discussed below hold promise for helping schools achieve improved outcomes, success ultimately depends on how each element is implemented.

**Small size and personalization.** A number of studies have found that, all else being equal, schools have higher levels of achievement when they create smaller, more personalized communities of teachers and students in which teachers work together and students see a smaller number of teachers over a longer period of time. This can be accomplished through smaller schools (most studies agree that outcomes are better in high schools with fewer than 900 students) or smaller functional units within schools (generally no larger than 400 students).<sup>25</sup>

Personalizing strategies contribute to higher outcomes. These can include smaller class sizes, longer class periods (which are associated with smaller pupil loads for teachers), advisories (classes in which teachers meet regularly with students to advise and support students with their work), teaming (a few teachers share the same group of students and regularly discuss students’ progress), and looping (teachers stay with the same group of students for more than a year).<sup>26</sup> For example, a study of 820 high schools in the National Education Longitudinal Study found that, controlling for student characteristics, schools that restructured to personalize education and develop collaborative learning structures produced significantly higher achievement gains that were also distributed more equitably across more- and less-advantaged students.<sup>27</sup> Other studies have found improved student and teacher relationships and increased student engagement, as well as improved student achievement, as a result of these strategies.<sup>28</sup>

**Shared school mission.** A problem commonly reported among less successful schools is goal diffusion, as fragmentation and managerial distractions cause schools to lose focus on teaching and learning. A common theme running throughout the research on successful schools is having a clear, shared focus on student learning with common norms and practices across classrooms.<sup>29</sup> Faculty communication, community ownership, and a common purpose and curricular focus—all associated with developing a shared school mission—facilitate greater participation among marginal students.<sup>30</sup> Other research confirms that developing common goals, norms, and practices with a strong focus on teaching and learning leads to greater student engagement and student outcomes, especially for underserved students.<sup>31</sup>

**Strong academic curriculum.** Students attending schools that emphasize academic rigor and provide a narrower range of courses (signaling greater curriculum focus and less tracking) are more likely to make greater gains in their academic achievement.<sup>32</sup> Moreover, students attending such schools have lower rates of absenteeism and stronger graduation rates.<sup>33</sup> In fact, when students of similar backgrounds and initial achievement levels are exposed to more- and less-challenging curricula, those given the richer curriculum opportunities outperform those placed in less-challenging classes.<sup>34</sup> As a corollary, students achieve at lower levels and exhibit more behavioral problems when they are tracked into classes that are academically unchallenging.<sup>35</sup> Importantly, schools that have successfully created a common curriculum for students of varying levels of initial achievement have offered other supports and interventions alongside the curriculum, such as during- and after-school help with homework and tutoring.<sup>36</sup>

**Authentic instruction.** A number of studies have found positive influences on student achievement from what researchers call “authentic instruction”—that is, teaching and assessment that requires students to construct and organize knowledge, consider alternatives, apply inquiry processes to content central to the discipline, and communicate effectively to audiences beyond the classroom and school—much like the expectations of new standards.<sup>37</sup> For example, a study of more than 2,100 students in 23 restructured schools found significantly higher achievement on intellectually challenging performance tasks for students who experienced authentic instruction.<sup>38</sup>

Authentic instruction generally occurs through activities such as science experiments, mathematical modeling, social science inquiry, and other projects requiring in-depth study, writing, and public presentations. These activities can create high expectations throughout a school and encourage mutual teacher and student accountability for meeting expectations.<sup>39</sup>

**Professional community.** Many researchers have identified the collaboration associated with a professional community of teachers as a key element of successful schools.<sup>40</sup> Bryk, Camburn, and Louis define a professional community as teachers' focus on student learning, collective responsibility for school improvement, de-privatized practice, reflective dialogue, and staff collegiality and collaboration.<sup>41</sup> A professional community encourages teachers to take responsibility for student learning and provides them with tools to do so, through collaboration around learning problems and effective teaching practices. In their study of 24 restructured schools, Newmann and colleagues found that having a strong professional community of practice is one of three commonalities among schools achieving high levels of student learning.<sup>42</sup> Other research suggests that a collegial professional environment for teachers produces stronger achievement and generates greater collective responsibility for school improvement and student learning.<sup>43</sup>

## Conclusion

The Every Student Succeeds Act provides an important opportunity to create new accountability strategies that seek to view students and schools more holistically. Taking advantage of this opportunity will require states to find, evaluate, and implement effective evidence-based interventions that support equitable, high-quality learning for all students.

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