

EFFECTIVE STRATEGIES & SERVICES FOR **GRADUATION IMPROVEMENT**

A RESEARCH BRIEF

Written By

Dr. Bill Daggett
Founder
Successful Practices Network

Dr. Sandy Addis
Senior Fellow
Successful Practices Network

NATIONAL DROPOUT PREVENTION CENTER | A division of SPN Successful Practices Network

Table of Contents

I. Introduction 1

II. The History of the *Effective Strategies* 1

III. The Need for Updated *Effective Strategies and Services* 2

IV. SPN's Process for Updating the *Effective Strategies* 3

V. The 2026 *Effective Strategies & Services for Graduation Improvement* 4

Domain One: Share Collective Responsibility for All Students 4

Domain Two: Build Supportive Networks for All Students 7

Domain Three: Enhance Instructional Engagement Strategies 9

Domain Four: Offer High-Impact Learning Pathways 11

VI. Recommended Next Steps 13

VII. References 13

I. Introduction

For over 30 years, the National Dropout Prevention Center's Effective Strategies for Dropout Prevention have served as the gold standard for improving graduation rates. Although research-based and highly valuable, the original Effective Strategies must be updated to reflect current language, research findings, and recent changes in students and schools. This research brief provides a brief history of the original Effective Strategies, explains the rationale and process for revision, and details the research and findings that support the new Effective Strategies & Services for Graduation Improvement.

II. The History of the *Effective Strategies*

Dr. Jay Smink, Director of the National Dropout Prevention Center, developed the original Effective Strategies for Dropout Prevention in the early 1990s. After pilot testing the strategies through NDPC services, Dr. Smink and Franklin Schargel published them in two books: *Strategies to Help Solve Our School Dropout Problem* (Schargel & Smink, 2001) and *Helping Students Graduate: A Strategic Approach to Dropout Prevention* (Smink & Schargel, 2004).

The "*15 Strategies*," as the work came to be known, gained national popularity and, over several years, were widely adopted by school districts and state departments. Over the years, the United States Department of Education has frequently referenced and used the *Effective Strategies*. Some states, such as Mississippi and Maine, used the *Effective*

Strategies as the basis for legislation on at-risk student services. States such as South Carolina and the United States Department of Education have required that grant projects be based on the *Effective Strategies*, and some colleges of education have based graduate course content on them. Even in 2026, Google searches on dropout prevention and AI research direct educators to the original *Effective Strategies*.

The original *Effective Strategies* included many action steps that remain needed and very helpful, such as a system-wide approach, family engagement, mentoring, and alternative programs. However, the original *Effective Strategies* also recommended several action steps that are now widely adopted and evident, including early childhood literacy, active learning, and individualized instruction.

The *Effective Strategies* were originally conceived as a framework or road map for educators to analyze and select the most locally appropriate action steps, with foundational strategies, such as system-wide ownership of at-risk student success, addressed before more targeted strategies, such as alternative schools for the most unsuccessful students.

Over the years, some schools misunderstood the *Effective Strategies* as a to-do list rather than a conceptual framework. Some schools assumed that implementing most or all the listed strategies, regardless of quality or local need, would solve the dropout issue. Research by NDPC found that appropriate application of the strategies produced much better graduation outcomes than blanket application.

In addition to its widespread use among educators, the original *Effective Strategies* served as the basis for most NDPC services from 1990 to 2025. However, a shortcoming of the original *Effective Strategies* was that the document did not recommend services for each strategy. Its popularity and extended use are typically attributed to the validity and reliability of Dr. Smink's original research and the continuing need for a practical school improvement tool.

III. The Need for Updated *Effective Strategies and Services*

Three reasons prompted NDPC to revisit and update the original *Effective Strategies*.

1. **Passage of Time.** Since the 1990s, research supporting some of the original *Effective Strategies* has been updated and verified through hundreds of field studies. However, no comprehensive review and consideration of recent findings has occurred in more than 30 years. NCPC and SPN believe that such a widely used tool should be current and closely aligned with contemporary educational thinking, challenges, and available services.

2. **Widespread Adoption of the Original Strategies.** Some dropout-prevention strategies that NDPC recommended over the past 30 years have been adopted and are now assumed to be part of America's schools. These strategies have become so common that there is no longer a need to recommend them or to train schools in their use. State funding of early childhood programs is now the norm, and most of the nation's pre-K-age children are enrolled in public pre-K programs. Early literacy instruction is common practice in public and private preschool programs and is usually found in day care programs for very young children. Access to instructional technology for at-risk students has shifted from computer lab time in the 1990s to one-to-one personal take-home devices for all students and, in the 2020s, to virtual instruction.

3. **Modern Challenges and New Solutions.** In recent years, challenges to graduation outcomes have emerged or shifted from minor problems to major issues. NDPC and SPN believe that the best front-row practices and training to support them should be readily available to today's educators. For example, truancy and chronic absenteeism suddenly doubled after the 2020 pandemic and spread from some at-risk students to over 1/3 of the general student population in many states. Societal shifts, rising crime, and the pandemic inflicted trauma on more children, and recent brain research has shown the adverse, long-term effects of trauma on learning and behavior. The 1990s concept of alternative schools as disciplinary programs has evolved into multifaceted, nontraditional offerings that produce better results. NDPC and SPN understand the responsibility to offer the latest research and tools to improve attendance, create Trauma-Skilled™ Schools, and bring all the nation's alternative schools to the highest levels of effectiveness.

IV. SPN's Process for Updating the *Effective Strategies*

As early as 2019, NDPC and SPN staff and researchers began analyzing and evaluating each of the original *Effective Strategies*. From 2020 to 2025, staff and researchers identified new challenges facing at-risk students and school outcomes. Several original strategies, such as Early Childhood Education, Early Literacy, and Active Learning, were well established and producing results. Several others, like Alternative Schools and Instructional Technology, had changed significantly and needed new research and approaches. New strategies, such as Attendance Improvement, Trauma Skills, Resilience Building, and Data-based Root Cause Analysis, were recognized as high impact and requiring research, additional field study, and service offerings.

In 2025 and 2026, a team of NDPC and SPN staff, researchers, consultants, and practitioners identified the current *Effective Strategies & Services* shown to improve

graduation outcomes, supported by current research and field experience, and still requiring tools and supports for wider implementation. Additionally, the team found it advisable to reorganize the new *Effective Strategies & Services for Graduation Improvement* into four domains for ease of understanding and implementation. The SPN team also felt it necessary to ensure that each recommended strategy is supported by specific documents, tools, examples, and services to support implementation.

V. The 2026 *Effective Strategies & Services for Graduation Improvement*

For clarity and ease of use, SPN has organized the new *Effective Strategies & Services for Graduation Improvement* into four domains. Each domain lists several specific strategies and recommended actions, along with sample research findings that support each strategy. SPN and NDPC also provide additional research, examples, resources, and support services for each domain and strategy.

Domain One: Share Collective Responsibility for All Students

A. Create intentional staff, leadership, and school culture. *Schools create an environment in which every staff member understands and takes ownership of the importance of supporting every student's opportunity to graduate. This dedication fosters a mutual sense of connection and belonging between students and staff, ensuring that the school community is safe and supportive for all students.*

To establish a foundation for student success, schools must cultivate an environment where ***staff take ownership of graduation outcomes***. Research shows that when the entire school community shares responsibility for at-risk students rather than delegating it solely to counselors or specialists, graduation metrics improve significantly (Belfantz et al., 2024). Groundbreaking research by Roger Goddard found that collective teacher efficacy predicts student achievement in reading and mathematics to a degree that often outweighs socioeconomic status (Goddard et al., 2000). Furthermore, John Hattie identified shared responsibility and staff collaboration for learning impact as having nearly four times the average effect on student academic progression (Donohoo et al., 2018). At the same time, findings from the National Center on Scaling up Effective Schools confirm that staff holding high expectations directly boosts student persistence and achievement (National Center on Scaling up Effective Schools, 2013).

Cultivating this shared responsibility directly reinforces a ***safe environment*** and a profound sense of ***student belonging***. A recent study led by Wake Forest University psychologist Shannon Brady, published in *Educational Researcher*, analyzed data from more than 21,000 students and found that a one-point increase on a five-point

belonging scale ("I feel that I am a part of [school]") is associated with a 3.4 percentage-point higher likelihood of graduating within four years (Brady & Goplin, 2026). Data from the Southern Education Foundation show that physical and emotional school safety directly drives attendance, test scores, and completion rates (Southern Education Foundation, 2018). As emphasized in an EdResearch for Action brief, emotional engagement is the primary predictor of sustained academic success, underscoring that supportive, connected school cultures are essential to high school graduation (Wenglinsky, 2002).

B. Offer systemic and student-centered professional learning. *School leaders provide ongoing, sustained professional learning specifically aimed at improving graduation outcomes. Learning experiences address multiple factors that affect graduation rates, including understanding the impact of trauma on students, improving attendance, and implementing engaging instructional practices.*

School leaders must provide continuous, ***targeted professional learning*** to equip educators to overcome non-academic and instructional barriers to graduation. Research evaluated by the National Dropout Prevention Center indicates that students whose teachers complete specialized training in working with diverse student populations achieve greater academic gains than those whose teachers have not received such training. Studies by Harold Wenglinsky link targeted professional development directly to higher academic performance and dropout prevention (Wenglinsky, 2000). According to the National Survey on High School Strategies, ongoing, staff-wide training expands educators' capacity to address behavioral and engagement challenges. It strongly correlates with helping at-risk students stay on track for on-time completion (Faria et al., 2017).

A vital component of student-centered professional development is training educators to recognize and respond to critical early warning indicators, particularly chronic absenteeism. A multi-year statewide study by the Alabama Department of Education analyzing 2024 graduation outcomes found a strong link between ninth-grade attendance and graduation: ninth graders with four or fewer absences annually graduated at an 87% rate, whereas those missing 10 to 14 days graduated at 41%, and students missing 15 or more days graduated at 21% or lower (Alabama State Department of Education, 2024). Continuous professional learning equips school teams to build systemic, ***proactive attendance interventions*** before students fall irreversibly behind.

Additionally, professional learning must focus on creating ***trauma-skilled learning environments***. The Berne-Knox-Westerlo School District in New York, the first district

certified as trauma-skilled through the National Dropout Prevention Center, tracked student cohorts and reported graduation rates reaching 91% following school-wide implementation of the Trauma-Skilled Schools™ Model (National Dropout Prevention Center, 2023). Similarly, after the nine alternative schools in South Carolina's Greenville County Schools earned National Trauma-Skilled Schools Certification in 2020, the overall district graduation rate rose from 84.1% in 2021 to 90.6% in 2025. As Superintendent Dr. Burke Royster noted, "The Trauma-Skilled Schools Model is a Tier 1 approach that creates a culture that effectively supports and responds to trauma-impacted students and fosters the development of skills that enable them to engage in the learning process fully. It is especially important to students in our alternative programs who are most in need of additional supports to successfully transition from these structured learning environments back into a traditional setting." (National Dropout Prevention Center, 2020)

C. Employ data to find root causes and develop solutions. *Schools implement a systemic approach to clinical investigation, using attendance, behavior, and course completion data to guide interventions. By monitoring these key dropout predictors, leadership teams can make informed, proactive decisions that support student resilience and overall school success.*

Transforming school culture requires ***moving beyond raw data collection to a systemic approach of clinical analysis***. By continuously monitoring attendance, behavioral incidents, and course completion data, leadership teams can identify dropout predictors early and diagnose the underlying causes of student attrition. Landmark case studies show that when districts convert administrative data into proactive, individualized academic supports, graduation rates increase significantly compared with traditional, reactive interventions (Balfanz, 2007).

A 2023 Georgia State University study demonstrated the practical power of root-cause analysis by examining historical and predictive data for hundreds of at-risk students. By identifying the specific root drivers of individual student disengagement, researchers enabled school teams to replace broad, generalized dropout-prevention efforts with laser-focused, personalized interventions. This targeted approach directly eliminated barriers to persistence, ultimately boosting student graduation rates by eight percentage points (National Institute for Student Success - Georgia State University Student Success Initiative, 2023).

Domain Two: Build Supportive Networks for All Students

A. **Build family and caregiver partnerships.** *Schools establish family and caregiver partnerships rooted in authentic relationships. These partnerships empower families to positively influence student motivation, encourage student interests, and contribute to fortifying student resilience, creating a unified, two-way support system that bridges the space between home and school.*

   Decades of research confirm that active ***family engagement and support*** are a primary predictor of high school completion. Specifically, a comprehensive study analyzing the National Longitudinal Survey of Youth, published in Applied Economics, shows that higher levels of parental involvement directly increase a student's probability of graduating from high school (Kantová, K., 2024). Furthermore, data from the U.S. Department of Education demonstrate that strong family engagement is directly linked to lower dropout rates and higher academic performance across all racial and socioeconomic backgrounds (Harvard Graduate School of Education, 2023).

   Effective home-school partnerships create a unified, two-way support system that bridges the gap between home and school. Collaborative research from the Harvard Graduate School of Education and the National PTA shows that these partnerships raise graduation rates by cultivating student motivation, building self-esteem, and significantly reducing classroom behavioral issues (Harvard Family Research Project & National PTA, 2023).

   By actively involving families and caregivers as partners in academic and social development, schools create a sustained protective network that promotes student persistence through graduation.

B. **Invest in programs that build relationships and resilience.** *School communities create strategic opportunities for students to connect with caring adults, their peers, and their local communities to contextualize their possible futures better. High-impact programs like mentoring, after-school opportunities, and service learning foster resilience by giving students a sense of purpose and a broader support network that extends beyond the traditional school day.*

   To safeguard students from dropping out, school communities must create strategic opportunities for youth to ***build meaningful connections with caring adults***, peers, and local community members. Research shows that supportive campus relationships and social capital serve as essential buffers against attrition; for instance, Harvard and Cornell researchers studying the Communities in Schools

Model found that three years of relationship-driven support significantly increased high school graduation rates and ongoing college enrollment (Communities in Schools, 2025).

Building student resilience—encompassing self-efficacy, grit, and adaptive coping strategies—further strengthens this foundation. Studies published in SAGE Journals show that higher student resilience scores are statistically significant predictors of lower dropout rates (Goldman, 2025). At the same time, actively implementing the National Dropout Prevention Center's Resilience Model™ drives measurable gains in student success (National Dropout Prevention Center, 2026). Similarly, K-12 schools participating in East Tennessee State University's Resilient Schools Project (RSP) achieved higher graduation rates and reduced chronic absenteeism by applying a trauma-informed resilience framework (East Tennessee State University, 2023).

Structured ***mentoring programs*** represent a uniquely powerful relational intervention for underrepresented and at-risk youth. Research reported by Walden University confirms that structured mentoring enhances academic confidence, fosters belonging, and helps students navigate barriers (Clarke, 2020). According to research from the Center for Engaged Learning, students who form highly individualized, mutually beneficial mentoring relationships with faculty, staff, or peers persist to graduation at higher rates (Moore et al., 2022). Furthermore, a national study published in The Chronicle of Evidence demonstrated that a hybrid mentoring model increased the likelihood of high school graduation by approximately 7% for each additional month a student remained matched with a mentor (Chronicle of Evidence-Based Mentoring, 2024).

Extending learning opportunities beyond the traditional school day through high-quality after-school, summer, and service-learning programs provides critical academic and developmental reinforcement. Comprehensive evaluations by the National Institute on Out-of-School Time (NIOST) and the Afterschool Alliance confirm that regular participation in 21st Century Community Learning Center programs markedly improves school-day attendance and academic performance while reducing unexcused absences (Afterschool Alliance, 2020). The landmark Study of Promising Afterschool Programs tracked nearly 3,000 low-income students and found that high schools offering robust after-school options see significant gains in student performance indicators closely linked to graduation. Research also indicates that high-quality summer instructional programs indirectly boost high school graduation rates by strengthening foundational skills, increasing student engagement, and promoting credit recovery (Vandell et al., 2007). Additionally,

reviews by the Learning Policy Institute indicate that well-run summer programs reverse the "summer slide" and that consistent attendance yields gains equivalent to several months of academic growth, building the confidence needed to stay in school (Fitz et al., 2025).

Research from the University of Massachusetts found that K-12 students who participated in service learning were significantly more engaged in school. One study linked service learning directly to improved high school progress in core subjects and higher odds of graduating (University of Massachusetts, 2022). Extensive reviews of service learning models by the Learning Policy Institute found a strong correlation between these initiatives and school persistence. The research found that schools that deploy service learning as a core strategy experience marked declines in dropout rates and subsequent increases in graduation rates (Maier et al., 2017).

Domain Three: Enhance Instructional Engagement Strategies

A. Champion rigorous and relevant instructional strategies. *Educators are empowered by their administrators to employ instructional strategies grounded in the neuroscience of learning and focused on offering students rigorous, relevant learning experiences. This increases student engagement, transforming classrooms into dynamic spaces designed to captivate students and stoke their curiosity.*

Grounding instruction in high cognitive challenge and practical application is central to the Rigor-Relevance-Resilience (R^3) Learning Model™, which research shows effectively reduces dropout rates and improves graduation outcomes. A Freshman Academy case study at Gardner-Webb University found that restructuring ninth-grade instruction around rigor and relevance—with cross-curricular teacher collaboration to ensure mastery of foundational skills—directly improved high school graduation rates (Gardner-Webb University, 2015). Similarly, a longitudinal study by the Bill & Melinda Gates Foundation found that students in schools where assignments demanded both high cognitive challenge and real-world application achieved better attendance, deeper content knowledge, and significantly higher graduation rates than peers in traditional comprehensive high schools (Bill & Melinda Gates Foundation, 2005).

Elevating instructional rigor and relevance is a primary driver of deep ***student engagement***. National institutional data confirm that this engagement directly correlates with greater academic persistence, higher grade point averages, and on-time graduation (Bay, 2026). Large-scale research involving more than 110,000 students links high emotional and behavioral engagement to superior credit

accumulation, academic achievement, and post-secondary readiness (Instructional Empowerment, 2026).

When classrooms become captivating, real-world learning spaces, students develop the intrinsic motivation to navigate academic challenges and stay on track to earn their diplomas.

B. Develop personalized learning opportunities. *Adopt individualized instructional practices that help students see their experiences, interests, and identities reflected in their learning. This student-centered instruction fosters a stronger sense of relevance, ensuring that every learner understands how their education connects to their personal goals and future opportunities.*

Empirical research confirms that tailoring academic and social supports to individual student profiles through ***personalized learning*** frameworks yields substantial improvements in student persistence and high school completion. A Harvard Graduate School of Education study found that students receiving three years of personalized instructional and relational support through the Communities in Schools model achieved meaningful gains in standardized test scores, higher graduation rates, and increased postsecondary enrollment. Likewise, RAND Corporation research affirms that personalized learning plans improve academic achievement across all student demographics (Goldman & Gracie, 2025). In contrast, broader research on individualized support models shows a 5.2% increase in high school graduation rates, along with proportional gains in college enrollment (Pane, 2015).

C. **Deploy intentional technology solutions.** *Districts deploy appropriate technology solutions—including artificial intelligence fluency and virtual learning pathways—specifically designed to engage at-risk learners. These tools provide flexible options for credit recovery and high-engagement experiences, preparing students with the digital literacy required for the modern workforce.*

While technology should never be the sole or primary instructional method for at-risk youth, ***strategic applications of technology*** can significantly improve graduation outcomes. For example, early-warning systems and AI analytics can predict high school dropout risk with over 92% accuracy, enabling educators to deploy targeted interventions well before a student fails a course (Roda-Segarra et al., 2024). However, research on AI as a direct teaching tool highlights important nuances: a University of Pennsylvania study comparing high school students using standard ChatGPT with those using structured AI tutors found that while AI helped students

complete practice problems faster, using it as a "crutch" reduced long-term retention and test performance. Consequently, educational technology consensus emphasizes using AI primarily as a supplementary diagnostic tool for teachers, not a replacement for direct classroom instruction (Bastani et al., 2024).

When traditional classroom instruction fails, digital technology offers crucial secondary pathways for credit recovery and immersive learning. Statewide evaluations of digital platforms such as Edgenuity show that structured online credit recovery programs are linked to meaningful increases in on-time graduation among over-age and at-risk high school students (May & Berrett, 2026). Furthermore, emerging tools like virtual reality (VR) significantly boost instructional engagement, attendance, and grade progression. A 2025 study of rural schools in El Salvador found that supplementing instruction with VR increased student attendance by 31% and improved academic retention by 35% (American Consortium for Equity in Education, 2025).

Domain Four: Offer High-Impact Learning Pathways

A. **Cultivate CTE programs and career-connected learning experiences.** *Schools build robust Career Technical Education (CTE) programs and integrate career-connected learning experiences that align academic work with future employment. By offering opportunities like earning micro-credentials and participating in industry partnerships, these options provide students with the tangible motivation and career-ready skills necessary for long-term economic mobility.*

Research shows that ***CTE participation*** significantly improves high school graduation rates, with the most pronounced benefits for at-risk students. A landmark 2015 meta-analysis by Dr. Shanan Chappell Moots of Old Dominion University for the National Dropout Prevention Center identified CTE participation among at-risk students as the single most impactful dropout-prevention strategy (Chappell et al., 2015). Corroborating this finding, John Hattie's comprehensive meta-analysis ranks CTE as the top overall factor influencing student achievement—with an effect size of 1.57—which strongly correlates with long-term retention and high school completion (Donohoo et al., 2018)

The positive impact of career-connected learning extends directly to daily student engagement and credit accumulation. A 2025 study in the Journal of Career and Technical Education found that CTE concentration has a statistically significant positive effect on classroom attendance and overall final GPA, directly mitigating

dropout risk. Furthermore, research on credit-earning patterns shows that each additional career-technical credit lowers a student's likelihood of dropping out and increases the probability of on-time graduation (Shoemaker, 2025). A systematic review by the American Institutes for Research confirmed these positive effects on high school completion, and broader educational policy syntheses show that focused CTE concentrators are 7 to 21 percentage points more likely to graduate on time than non-concentrators, with the largest gains among economically disadvantaged students (CTE Research Network & American Institutes for Research, 2024).

B. Support quality alternative learning programs. *Districts invest in high-quality alternative programs that ensure students receive personalized attention, flexible scheduling, and effective credit recovery opportunities. These programs hire and support a high-quality staff and deploy specialized frameworks to provide scaffolded paths for students at the greatest risk of dropping out to achieve their high school diplomas.*

Across the nation's estimated 10,000 alternative schools and programs, research and decades of NDPC field experience confirm that strategic design and effective operation are the critical determinants of success. Alternative schools re-engage at-risk youth by combining flexible scheduling, career-focused tracks, and personalized support. Studies highlighted by County Health Rankings show that well-designed alternative programs narrow achievement gaps and increase completion rates among low-income students and students of color (University of Wisconsin Population Health Institute, n.d.). An analysis by Education Reimagined found that alternative schools centered on student interests and real-world learning saw graduation rates surge to 70% to 83% (Petty, 2025).

The most ***effective alternative learning environments*** depart significantly from traditional, discipline-focused models by prioritizing vocational integration and individual flexibility. Research indicates that alternative programs integrating vocational instruction achieve substantially better graduation outcomes than those adhering solely to core traditional coursework and disciplinary control (University of Wisconsin Population Health Institute, n.d.). Furthermore, programs that offer adjusted credit-recovery timelines and flexible scheduling—allowing students to balance external real-world challenges such as family and employment responsibilities—consistently produce higher completion rates. Finally, alternative settings that structure smaller learning communities to deliver comprehensive personal support across academic, emotional, and behavioral domains consistently guide the highest-risk students to graduation (Lam et al., 2024).

VI. Recommended Next Steps

The SPN Strategy Team recommends that all schools, districts, and states review and adopt the new *Effective Strategies & Services for Graduation Improvement* and replace the "15 Effective Strategies" document with this updated resource.

SPN acknowledges that local circumstances, including limited personnel, time, and resources, may sometimes require assistance from external dropout-prevention experts. SPN employs many experienced specialists who can help local schools and districts address this issue. SPN's dropout-prevention support, always customized to meet local needs, may include:

- Guided data analysis and root-cause analysis to select the most appropriate local strategies
- Professional development for leaders, teachers, and other stakeholders
- Guidance and coaching to apply the tools and strategies outlined in this research brief
- Facilitation of district- and school-level Dropout Prevention Teams to develop a locally appropriate program and action steps
- Expert evaluation of current and new initiatives, with reports on findings
- Ongoing guidance and coaching for local Teams to monitor, improve, and sustain local initiatives

For support or more information, email SPN and NDPC at ndpc@dropoutprevention.org.

VII. References

Afterschool Alliance. (2020). *21st Century Community Learning Centers make a difference* (Issue Brief No. 72). Afterschool Alliance.

Alabama State Department of Education. (2024). *Alabama attendance manual*. Alabama State Department of Education.

American Consortium for Equity in Education. (2025, April 28). *Study finds virtual reality improves students' knowledge retention and motivation*. https://ace-ed.org/study-finds-virtual-reality-improves-students-knowledge-retention-and-motivation/

Balfanz, R., Herzog, L., & Mac Iver, D. J. (2007). Preventing student disengagement and keeping students on the graduation path in urban middle-grades schools: Early identification and effective interventions. *Educational Psychologist, 42*(4), 223–235. https://doi.org/10.1080/00461520701621079

Balfanz, R., Jerabek, A., Payne, K., & Scala, J. (2024). *Strengthening school connectedness to increase student success* (EdResearch for Action Overview Series Brief No. 29).

EdResearch for Action. https://edresearchforaction.org/research-briefs/strengthening-school-connectedness-to-increase-student-success/

Bastani, H., Bastani, O., Sungu, A., Ge, H., Kabakçı, Ö., & Mariman, R. (2024). *Generative AI can harm learning* [Working paper]. The Wharton School, University of Pennsylvania. https://ssrn.com/abstract=4895486

Bay, J., *Belonging in College Isn't Just Nice – It Can Boost Graduation Rates,* Inside Higher Ed., 2026.

Bill & Melinda Gates Foundation. (2005). *Rigor, relevance, and results: The quality of teacher assignments and student work in new and conventional high schools*. Bill & Melinda Gates Foundation.

Brady, S. T., & Gopalan, M. (2026). College students' sense of belonging: A graduation update. *Educational Researcher*. https://doi.org/10.3102/0013189X251393248

Chappell, S. L., O'Connor, P., Withington, C., & Stegelin, D. A. (2015). *A meta-analysis of dropout prevention outcomes and strategies* [Technical report]. National Dropout Prevention Center/Network at Clemson University & The Center for Educational Partnerships at Old Dominion University.

Chronicle of Evidence-Based Mentoring. (2024). *Closing the gap: New study examines mentoring and college*—Chronicle of Evidence-Based Mentoring.

Clarke, C. M. (2020). *Formerly at-risk, undergraduate alumni's mentoring experiences at a historically Black university* [Doctoral dissertation, Walden University]. ScholarWorks.

Communities In Schools. (2025). *Communities In Schools' evidence-based model drives academic gains and long-term economic mobility, according to Harvard–Cornell research* [Press release]. Communities In Schools.

CTE Research Network & American Institutes for Research. (2024). *What we know about the impact of career and technical education: A systematic review of the research*. CTE Research Network. https://cteresearchnetwork.org/resources/2024-systematic-review

Donohoo, J., Hattie, J., & Eells, R. (2018). The power of collective efficacy. *Educational Leadership, 75*(6), 40–44.

East Tennessee State University, Center for Rural Education and Development. (2022). *The Resilient Schools Project*. East Tennessee State University.

Faria, A.-M., Sorensen, N., Heppen, J., Bowdon, J., Taylor, S., Eisner, R., & Foster, S. (2017). *Getting students on track for graduation: Impacts of the Early Warning Intervention and Monitoring System after one year* (REL 2017–272). U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Midwest.

Fitz, J., Woods, J., Duran, N., & McCombs, J. (2025). *How states are expanding quality summer learning opportunities*. Learning Policy Institute.

Gardner-Webb University. (2015). *A freshman academy case study at Gardner-Webb University*. Gardner-Webb University.

Goddard, R. D., Hoy, W. K., & Woolfolk Hoy, A. (2000). Collective teacher efficacy: Its meaning, measure, and impact on student achievement. *American Educational Research Journal, 37*(2), 479–507. https://doi.org/10.3102/00028312037002479

Goldman, B., & Gracie, J. (2025). *When resources meet relationships: The returns to personalized supports for low-income students* [Working paper]. Opportunity Insights. https://opportunityinsights.org/paper/cis/

Harvard Family Research Project & National PTA, *Family Involvement Makes a Difference* Evidence-Based Research Brief Series, 2023.

Harvard Graduate School of Education. (2023). *The case for strong family and community engagement in schools*. Usable Knowledge, Harvard Graduate School of Education.

Instructional Empowerment. (2026). *Why is deeper student engagement important?* Instructional Empowerment. https://instructionalempowerment.com/library/why-is-deeper-student-engagement-important-strategies/

Kantová, K. (2024). Parental involvement and education outcomes of their children. *Applied Economics, 56*(48), 5683–5698. https://doi.org/10.1080/00036846.2024.2314569

Lam, S., [remaining authors]. (2024). The complex and contradictory nature of alternative education provision. *Cogent Education*.

Maier, A., Daniel, J., Oakes, J., & Lam, L. (2017). *Community schools as an effective school improvement strategy: A review of the evidence*. Learning Policy Institute.

May, K., & Berrett, D. (2026). *Improved graduation outcomes for at-risk students: Imagine Edgenuity® credit recovery is associated with higher graduation rates for at-risk students* (Technical Report). Imagine Learning. https://www.imaginelearning.com/wp-content/uploads/2026/05/EDG-Credit-Recovery-is-Associated-with-Higher-Graduation-Rates-for-At-Risk-Students.pdf

Moore, J. L., Vandermaas-Peeler, M., & Peeples, T. (Eds.). (2024). *Mentoring matters: Supporting students' development of mentoring constellations in higher education*. Elon University Center for Engaged Learning. https://www.centerforengagedlearning.org/mentoring-matters/

National Center on Scaling Up Effective Schools. (2013). *Student ownership and responsibility: Keys to academic success*. Vanderbilt University.

National Dropout Prevention Center. (2020). *National Dropout Prevention Center awards nation's first trauma-skilled school certification to South Carolina alternative program*. National Dropout Prevention Center.

National Dropout Prevention Center. (2023). *Trauma-skilled schools model exemplary implementations: Berne-Knox-Westerlo Central School District*. https://dropoutprevention.org/

National Dropout Prevention Center. (2026). *Resilience practice guide*. National Dropout Prevention Center.

National Institute for Student Success. (2023). *Georgia State University student success initiative*. Georgia State University.

Pane, J. F., Steiner, E. D., Baird, M. D., & Hamilton, L. S. (2015). *Continued progress: Promising evidence on personalized learning*. RAND Corporation. https://www.rand.org/pubs/research_reports/RR1365.html

Petty, J. (2025). *From margins to models: How alternative schools can lead the way to student engagement*. Education Reimagined.

Roda-Segarra, J., [remaining authors]. (2024). Effectiveness of artificial intelligence models for predicting school dropout: A meta-analysis. *Multidisciplinary Journal of Educational Research*. https://hipatiapress.com/hpjournals/index.php/remie/article/view/13342

Schargel, F. P., & Smink, J. (2001). *Strategies to help solve our school dropout problem*. Eye on Education.

Shoemaker, M. R. (2025). The impact of career and technical education concentration on the success of high school students. *Journal of Career and Technical Education*.

Smink, J., & Schargel, F. P. (2004). *Helping students graduate: A strategic approach to dropout prevention*. Eye on Education.

Southern Education Foundation. (2018). *Community schools: Transforming education for all students*. Southern Education Foundation.

University of Massachusetts. (n.d.). *Service-learning and engagement in K–12 students: Academic progress and graduation outcomes*. University of Massachusetts.

University of Wisconsin Population Health Institute. (n.d.). *Alternative high schools for students at risk of dropping out*. County Health Rankings & Roadmaps. Retrieved September 17, 2026, from https://www.countyhealthrankings.org/strategies-and-solutions/what-works-for-health/strategies/alternative-high-schools-for-students-at-risk-of-dropping-out

Vandell, D. L., Reisner, E. R., & Pierce, K. M. (2007). *Outcomes linked to high-quality afterschool programs: Longitudinal findings from the Study of Promising Afterschool Programs*. Policy Studies Associates.

Wenglinsky, H. (2000). *How teaching matters: Bringing the classroom back into discussions of teacher quality*. Educational Testing Service Policy Information Center & Milken Family Foundation.