Implementation Still Matters

What 16 Years of Research Tell Us About Implementing Literacy Programs, HQIM, and AI-Enabled Tools

In 2010, the American Institutes for Research conducted a descriptive study of *READ 180* across five urban middle schools to understand why the same reading intervention produced markedly different results from one district to the next. The researchers found that the quality of implementation, not the program, was responsible for those differing results. The implementation and results were dependent on the conditions districts and schools created, or failed to create, around the program. The researchers organized these conditions into three phases of implementation: initiating, developing, and sustaining (Salinger et al., 2010).

Sixteen years later, the three phases of implementation still resonate, but the research base has grown substantially, and the stakes have risen. The post-pandemic recovery period has demonstrated this at a national scale. Districts invested billions in strong, evidence-based interventions, yet most recovery programs experienced shortfalls of implementation and reached fewer students, at lower dosage, than planned (Carbonari et al., 2024). As districts face increasing scrutiny of education technology spending and the rapid adoption of AI-enabled tools, the lesson is clearer than ever: the difference between an instructional program that improves student outcomes and one that disappoints is in how well it is implemented. This brief revisits each of the original lessons learned, updates the lesson with what the research now demonstrates, and looks ahead to what effective implementation will require in the era of AI.

Phase 1: Initiating Implementation

2010 Lesson Learned: Successful adoption efforts build upon a foundation of support that has established a common understanding and a strong sense of purpose.

2026 Updated Lesson: Successful high-quality instructional materials (HQIM) implementation is strongest when districts establish a problem-specific, curriculum-anchored vision for instruction and professional learning, and then use continuous improvement routines to learn and adapt over time.

What recent research adds:

- Implementation science emphasizes that adoption is not an event but a process that requires attention to implementation outcomes (e.g., acceptability, feasibility, fidelity) before experiencing gains in student outcomes. Planning explicitly for these outcomes reduces “initiative fatigue” and

increases the likelihood that teachers buy into coherent, supported change (Lyon, 2017; Blase et al., 2015).

- Research on curriculum-based professional learning (CBPL) has found that a shared instructional vision becomes more actionable when it is anchored in the HQIM teachers use every day. Establishing a common language around CBPL helps leaders, providers, and schools align around what high-quality, curriculum-anchored learning looks like, reducing misalignment and improving coherence (Alicea et al., 2025; Learning Forward, 2022; Chu et al., 2022).
- Improvement science perspectives highlight the need to measure what matters for learning and improvement, not just compliance. Building measurement and feedback loops into implementation helps districts identify variation across schools, investigate the causes of the variation, and support adaptation of HQIM with integrity rather than drifting away from the HQIM entirely (Anderson et al., 2024).
- Causal research on curriculum effects shows that adopting HQIM alone rarely moves student outcomes. A six-state study of elementary math programs found little difference in achievement gains across schools using different textbooks, with weak implementation supports (including limited CBPL) among the likely explanations. Conversely, a randomized experiment found that providing teachers with high-quality online lesson materials improved student achievement, with the strongest effects found for providing materials and support for weaker teachers. Together, this evidence indicates that a vision anchored in HQIM pays off only when paired with a plan for implementation (Blazar et al., 2020; Jackson & Makarin, 2018).
- Two decades of research from the UChicago Consortium demonstrates that a school's organizational conditions, including leadership, teacher collaboration, family engagement, learning climate, and ambitious instruction, are the "essential supports" that determine whether improvement efforts take hold. Chicago schools strong in at least three of these supports were ten times more likely to substantially improve student learning than schools weak in them. Any effective program implementation therefore begins with an honest assessment of the current organizational foundation (Bryk et al., 2010; Young et al., 2026).

2010 Lesson Learned: Clear directions and expectations from district leaders enhance and build buy-in for *READ 180*.

2026 Updated Lesson: District leaders build durable buy-in when they define a small set of non-negotiable implementation expectations, align resources to those expectations, and communicate them consistently across schools while supporting local problem-solving.

What recent research adds:

- Implementation briefs in education note that diffusion and one-way dissemination rarely change practice; deliberate strategies are needed to "help it happen" and "make it happen." District leaders can use common implementation frameworks to anticipate barriers, sequence supports, and communicate expectations in ways that reduce ambiguity for schools (Lyon, 2017; Blase et al., 2015).
- CBPL guidance emphasizes leadership as a core driver. Leaders set the vision for HQIM use, protect time for collaborative learning, and ensure coaching and HQIM supports are aligned.

When expectations are curriculum-specific, teachers are more likely to see relevance and apply learning directly to instruction (Alicea et al., 2025; Learning Forward, 2022).

- Research on professional learning networks suggests that clarity of shared goals and structured activity design are key conditions for collaboration to influence classroom practice. Clear directions that elevate shared goals and provide facilitation structures increase the odds that collaboration translates into instructional change (Prenger et al., 2021; Poortman et al., 2022).
- State-level evidence demonstrates that expectations produce results when they include resources. An analysis of early literacy policies across 41 states found meaningful gains in elementary reading achievement concentrated in states that adopted comprehensive policies that included teacher training, coaching, universal screening, and interventions, while narrower mandates showed little effect. Clear expectations move practice when they are bundled with the supports to meet them (Westall & Cummings, 2023).

Phase 2: Developing Implementation

2010 Lesson Learned: Participation in initial training and ongoing professional development enhances the ability of teachers to make *READ 180* effective.

2026 Updated Lesson: Professional learning should be sustained, job-embedded, and curriculum-aligned. PL should combine high-quality implementation training with coaching cycles and collaborative practice to support teachers in making evidence-based routines stick.

What recent research adds:

- A large meta-analysis of causal research studies finds that teacher coaching improves instructional practice substantially and yields meaningful gains in student achievement, though effects can diminish when programs scale without adequate supports. This research suggests districts should design coaching programs with defined and protected roles, manageable workloads, and coach evaluation routines to ensure impact (Kraft et al., 2018).
- Research syntheses of effective professional development identify key features, such as content focus, active learning, collaboration, modeling, coaching/expert support, feedback and reflection, and sustained duration, that reliably relate to changes in teaching and student outcomes. For literacy initiatives, these features are most powerful when tightly linked to the materials and routines teachers are expected to implement (Darling-Hammond et al., 2017; Lynch et al., 2019; Steiner et al., 2025; Alicea et al., 2025).
- Literacy coaching planning guidance underscores that principal–coach partnerships, clear role definitions, and routines for modeling and feedback help coaches avoid being pulled into non-instructional duties. These structures increase the probability that coaching is experienced as supportive and results-oriented rather than evaluative or logistical (Lee & Smith, 2021).

2010 Lesson Learned: Guidelines for placing students in *READ 180* should reflect deep understanding of the program's strengths and of the students whom it can best serve.

2026 Updated Lesson: Student placement into an intervention program should be driven by an MTSS assessment system that combines universal screening, diagnostic follow-up, and ongoing progress monitoring to match students to the right intensity and content of support.

What recent research adds:

- MTSS assessment guidance emphasizes universal screening and progress monitoring as foundational practices for identifying risk early and making decisions about moving students between tiers using predetermined criteria. Embedding placement decisions in these routines reduces reliance on subjective referral processes and improves equity and consistency across schools (Bailey et al., 2020; NASP, 2018).
- Evidence from meta-analyses indicates that reading interventions for early grades yield positive average effects, supporting the value of targeted supports when students are appropriately identified and interventions are implemented well. This strengthens the case for placement processes that connect screening data to specific instructional needs and intervention design (Gersten et al., 2020).
- CBPL research also points to the importance of aligning intervention instruction with the core curriculum and ensuring educators have curriculum-specific learning opportunities to deliver supports as intended. Placement is more likely to be effective when intervention routines and materials are coherent with what students experience in Tier 1 instruction (Alicea et al., 2025; Rhode Island Department of Education [RIDE], n.d.; Wisconsin DPI, n.d.).
- The science of reading now provides intervention-specific guidance for the populations targeted by programs like *READ 180*. The What Works Clearinghouse practice guide on reading interventions for Grades 4–9 recommends explicit instruction anchored in word reading, vocabulary, and comprehension building, while the K–3 foundational skills guide supports early identification and intervention design. Grounding placement decisions in this evidence base ensures that students are matched to instruction consistent with reading development (What Works Clearinghouse, 2022; Foorman et al., 2016; Petscher et al., 2020).

2010 Lesson Learned: Districts promote on-model implementation by setting clear criteria for student exit from the program.

2026 Updated Lesson: Intervention exit decisions should be transparent, benchmark-aligned, and data-informed, using multiple indicators (growth, mastery, and readiness for grade-level work) and rules that prevent premature exit or unnecessary prolonged placement.

What recent research adds:

- MTSS practice guidance recommends establishing cut points, goal-setting routines, and progress-monitoring schedules so teams can evaluate whether students are responding adequately and when to adjust intensity. Clear exit criteria tied to benchmarks reduce variation

across schools and make decisions more defensible and equitable (Bailey et al., 2020; National Association of School Psychologists [NASP], 2018).

- Formative assessment research indicates that assessment improves outcomes when evidence is interpreted and used to decide next instructional steps. Applying this principle to exits means using progress data to plan transition supports and monitor whether students sustain gains after moving to less-intensive supports (Xuan et al., 2022; Anders et al., 2022).
- Implementation science cautions that sustaining effects requires attention to both intervention and implementation outcomes over time. For exits, districts can monitor re-entry rates and post-exit performance as a sustainability indicator and adjust criteria or supports accordingly (Blase et al., 2015).

2010 Lesson Learned: Districts need to develop and communicate clear guidelines and expectations for on-model classroom implementation and clear expectations that schools are expected to achieve.

2026 Updated Lesson: Districts should define what on-model implementation looks like through curriculum- and intervention-specific practice expectations, supported by usability-focused tools (look-fors, checklists) and regular observation and feedback cycles that balance fidelity with purposeful adaptation.

What recent research adds:

- Implementation research on fidelity stresses that impact depends on executing core components as intended; when fidelity is low, poor outcomes may reflect implementation failure rather than ineffective programs. Practical fidelity systems use observations, logs, and feedback to identify which components need support, where and how adaptations are occurring, and if those adaptations are appropriate (Gage et al., 2020; Office of Population Affairs [OPA], 2020; Implementation Science at UW, n.d.).
- CBPL artifacts emphasize a “balance between fidelity and adaptation,” where teachers implement high-quality materials with integrity while making responsive adjustments for learners. District guidance is most effective when it clarifies which elements are essential and which can be flexed, and then supports teachers to make those decisions using curriculum knowledge (Alicea et al., 2025; Learning Forward, 2024).
- Professional learning network research suggests that structured collaboration improves the likelihood that teachers develop shared interpretations of expectations for implementation and instructional practice. Districts can use PLC routines and protocols to help teachers interpret guidance and adjust implementation across classrooms (Prenger et al., 2021; Lomos et al., 2011).

2010 Lesson Learned: Districts and schools demonstrate the importance of *READ 180* by setting clear policies and procedures and allocating adequate resources for using data to monitor student progress and inform instruction.

2026 Updated Lesson: Data collection, analysis, and application should be built into the implementation design by providing time, tools, and training so educators can translate student data into instructional decisions aligned to the curriculum and intervention model.

What recent research adds:

- MTSS resources stress that meaningful assessment systems require not only tools but also routines for analyzing screening and progress-monitoring data and acting on it. Districts can support this by training teams to set goals, interpret trajectories, and choose instructional responses when growth is insufficient (Bailey et al., 2020).
- Research on learning analytics dashboards highlights that data tools often fail when they are not interpretable or actionable for educators. Co-designing reports and dashboards with educators and connecting them to specific instructional decisions increases the likelihood that data use improves teaching and learning rather than adding a compliance burden (Kannan & Zapata-Rivera, 2022; Bowers, 2021; Bergamaschi et al., 2025).
- CBPL work argues that data conversations are most productive when anchored in the materials and student work. Aligning data routines with curriculum planning (e.g., unit-level checks, lesson internalization) improves coherence and helps teachers link evidence directly to what and how they teach (Alicea et al., 2025; Chu et al., 2022; Learning Forward, 2024; Rivet Education, 2025).

2010 Lesson Learned: Monitoring of student progress increases the likelihood that the needs of students will be met.

2026 Updated Lesson: Progress monitoring should be frequent enough to inform instructional adjustments, paired with decision rules, and embedded in teacher team routines so that evidence leads to timely changes in instruction and support intensity.

What recent research adds:

- A meta-analysis of formative assessment interventions in reading shows a positive average effect on reading achievement, with stronger effects when assessment is paired with differentiated instruction and when teachers and students both use evidence. This suggests progress monitoring should be integrated with clear instructional moves (reteaching, regrouping, or adapting tasks) rather than treated as a stand-alone assessment event (Xuan et al., 2022; Sortwell et al., 2024).
- Large-scale evidence on embedding formative assessment as standard practice indicates that training plus teacher-led professional learning communities can improve outcomes when teams routinely use evidence to adapt instruction. This reinforces the importance of building

progress-monitoring routines into PLC time and using protocols that translate data into action (Anders et al., 2022; Aust et al., 2026).

- MTSS guidance provides concrete recommendations for selecting progress-monitoring tools and setting goals. When districts standardize these practices and provide coaching for data interpretation, schools are more likely to detect non-response early and intensify supports appropriately (Bailey et al., 2020).

2010 Lesson Learned: Districts demonstrate the importance of *READ 180* by setting clear policies and procedures and allocating adequate resources for monitoring teachers' implementation of the intervention.

2026 Updated Lesson: Teacher implementation monitoring should focus on core components, quality, and responsiveness and use multiple measures (observations, software usage data, self-reports) to guide coaching and continuous improvement rather than punitive compliance.

What recent research adds:

- Guidance on fidelity of implementation emphasizes that monitoring should capture both adherence (whether components were implemented) and quality (how well they were implemented), and that data should be used to improve implementation. When monitoring is framed as learning-oriented, it supports targeted coaching, increases engagement, and reduces defensiveness (Gage et al., 2020).
- National Center on Intensive Intervention (NCII) fidelity resources illustrate how schools can use rubrics, checklists, and meeting protocols to support consistent implementation and decision-making. These tools help teams diagnose whether a student's limited progress reflects an intervention mismatch, insufficient dosage, or inconsistent delivery (NCII, n.d.).
- CBPL work suggests that implementation evidence is strongest when tied to curriculum-specific practices (e.g., lesson routines, task enactment, student work). Districts can use common "look-fors" aligned to HQIM to help observers and teachers speak the same language about quality implementation (Alicea et al., 2025; Learning Forward, 2022).

2010 Lesson Learned: Providing opportunities for collaboration and communication increases school-based staff's understanding of *READ 180*.

2026 Updated Lesson: Collaboration should be structured, curriculum-anchored, and outcomes-based, with routines that support collective inquiry into student work and shared planning for high-quality instruction.

What recent research adds:

- Evidence from a meta-analysis suggests that professional learning communities can have a significant positive effect on student achievement, but effects depend on how communities are defined and implemented. School and district leaders must work to avoid "PLCs in name only"

and instead implement the specific practices, including shared goals, collaborative inquiry, and focus on student outcomes, that support effectiveness (Lomos et al., 2011).

- Research on professional learning networks highlights that structured activities, facilitation, and leadership support influence whether collaboration leads to teacher learning and school improvement. Collaboration is more likely to yield direct results in classrooms when networks create plans, tools, and routines that integrate with existing school structures (Prenger et al., 2021; Poortman et al., 2022).
- CBPL frameworks emphasize collaborative learning tied to curriculum, often supported by coaches, as a defining feature. When collaboration is grounded in analysis and planning around specific units and lessons, teachers can directly connect adult learning to next-day instruction (Alicea et al., 2025; Learning Forward, 2025; Colorado Department of Education [CDE], 2023).

2010 Lesson Learned: In-classroom support, coaching, and job-embedded professional development promote on-model implementation.

2026 Updated Lesson: Coaching and job-embedded support should be designed as a coherent system with cycles of modeling, observation, feedback, and reflection aligned to the curriculum and intervention routines, supported by leaders who value teachers and professional learning.

What recent research adds:

- New instructional materials are unlikely to change practice without intensive, curriculum-based learning experiences that support teachers in understanding and implementing the instructional shifts required for implementation. Curriculum-based professional learning frameworks emphasize tailoring support to teachers' stage of implementation and context, including differentiating supports over time as teachers deepen expertise with new materials (Short & Hirsh, 2020/2022).
- Causal evidence shows coaching can meaningfully improve instructional practices and student achievement, but effectiveness depends on the intensity and quality of coaching interactions and on the support provided to coaches. Designing coherent coaching cycles with clear goals, frequent feedback, and manageable scope improves the odds of sustained instructional change (Kraft et al., 2018; Steiner et al., 2025; NIET, 2020).
- Reviews of effective professional development emphasize the importance of coaching and opportunities for teachers to practice, receive feedback, and reflect over time. Job-embedded structures operationalize these features by positioning learning inside the instructional work rather than separate from it (Darling-Hammond et al., 2017).
- CBPL guidance centers coaching as a key support for implementing HQIM with integrity, noting that coaches help teachers translate curriculum intent into practice. Aligning coaching to specific materials and lesson routines increases coherence and reduces the gap between training and classroom practice (Alicea et al., 2025).
- Evidence on technology-mediated professional learning shows that well-designed online coaching can change teacher practice and improve student outcomes. A randomized trial of online coaching (MyTeachingPartner–Secondary) improved teacher–student interactions and

raised student achievement, and a randomized comparison of online versus face-to-face PD for curriculum implementation found comparable gains in teacher knowledge, practice, and student learning. The coaching meta-analytic evidence similarly finds that virtual coaching programs produce effects comparable to in-person programs, suggesting that the components of effective coaching, including observation, feedback, and reflection cycles, can be delivered at scale through online platforms (Allen et al., 2011; Fishman et al., 2013; Kraft et al., 2018).

2010 Lesson Learned: Setting criteria for determining program success is an important component of on-model implementation.

2026 Updated Lesson: Program success criteria should be defined initially as a set of implementation and outcome indicators, including short-term leading indicators (fidelity, dosage, teacher practice) and longer-term lagging indicators (student growth, equity, sustainability).

What recent research adds:

- Implementation science distinguishes between implementation outcomes and student outcomes; monitoring only student outcomes can delay learning and reflection and obscure why results occur. Defining success as a multi-level set of indicators allows teams to identify problems earlier and adjust supports before outcomes decline (Blase et al., 2015; Lyon, 2017).
- CBPL work recommends measurement for improvement and impact, including using evidence from teacher learning, classroom practice, and student work to refine professional learning and implementation supports. When success criteria are tied to curriculum implementation, districts can better interpret whether classrooms are on track for improvement (Alicea et al., 2025; Learning Forward, 2022; RPPL, 2025).
- District improvement science frameworks emphasize knowledge management and coaching plans to institutionalize improvement. Establishing explicit success criteria supports these routines by creating shared targets for improvement cycles (Anderson et al., 2024).
- The post-pandemic recovery effort offers a system-scale demonstration of why leading indicators matter. Across eight districts' recovery interventions, most programs served fewer students and delivered lower dosage than planned, and the interventions that produced meaningful gains reached only a small share of students. Districts that monitor reach, dosage, and fidelity as leading indicators can detect implementation gaps in time to correct them, rather than discovering them in end-of-year outcomes (Carbonari et al., 2024; Carbonari et al., 2026).

Phase 3: Sustaining Implementation

2010 Lesson Learned: On-model implementation is enhanced when one or more individuals play an intermediary role among district-level staff, school-based teachers, coaches, administrators, and Scholastic.

2026 Updated Lesson: Intermediary roles (e.g., implementation leads, literacy coordinators, curriculum leads, coaches) are essential for coherence because they connect district strategy to

school routines, ensure alignment of curriculum and professional learning, and coordinate feedback loops.

What recent research adds:

- Implementation science highlights the need for intermediaries that bridge systems and support educators as they adopt new programs and instructional practices. Intermediaries translate guidance into practical routines, surface barriers, and coordinate supports so that implementation does not depend on individual teachers going above and beyond their normal duties (Blase et al., 2015; Lyon, 2017).
- CBPL definitions specify that instructional coaches and facilitators are central to sustained, staged learning tied to the curriculum. Intermediaries help teachers interpret the "why" behind materials, rehearse instruction, and adapt with integrity for student needs (Alicea et al., 2025).
- Literacy coaching planning resources also emphasize principal–coach partnership agreements and clear communication channels to protect the coach's core work and clarify who supports what. These role-clarity structures increase the likelihood that intermediaries influence instruction rather than being absorbed into operational tasks (Lee & Smith, 2021; International Literacy Association [ILA], 2017; Bushman, 2021).

2010 Lesson Learned: Districts need to continue to stress clear guidelines and expectations for *READ 180* implementation.

2026 Updated Lesson: Sustaining implementation requires ongoing reinforcement: leaders revisit expectations, invest in onboarding for new staff, and use continuous improvement routines to respond to drift, turnover, and evolving student needs.

What recent research adds:

- Implementation frameworks emphasize sustaining implementation as an active stage, not a passive post-implementation stage. Without structures for onboarding new teachers, coaching, and routine monitoring, fidelity and quality tend to erode over time, particularly as staff and priorities change (Blase et al., 2015; Lyon, 2017).
- RPPL and partner organizations emphasize that CBPL should be staged over time, intensive and sustained, aligning learning to teachers' increasing familiarity with materials and the pacing of curriculum units. PL with a sustained emphasis supports deeper curriculum internalization and better classroom implementation (Alicea et al., 2025; Learning Forward, 2025; Rivet Education, 2026; RPPL, 2022).
- Improvement science frameworks point to coaching and knowledge management plans as key to institutionalizing improvement methods. Re-emphasizing expectations through these structures helps districts maintain coherence even when leadership or staffing changes (Anderson et al., 2024).

2010 Lesson Learned: The importance of monitoring student progress and teacher implementation and collaboration does not diminish over time.

2026 Updated Lesson: Long-term effectiveness depends on institutionalizing progress monitoring, implementation monitoring, and collaboration as routine "ways of working" that are supported by data systems, protected time, and leadership structures.

What recent research adds:

- Evidence on PLCs and professional learning networks indicates that collaboration improves practice when it is sustained and supported by structures (time, facilitation, protocols) and when it stays focused on learning and student outcomes. Over time, these routines build organizational capacity to learn from evidence and adapt instruction (Prenger et al., 2021; Lomos et al., 2011).
- CBPL work argues that measurement for improvement and collaborative learning are defining features, and that leaders must allocate resources to sustain them. When districts institutionalize these routines, they reduce reliance on temporary initiatives and increase the likelihood that HQIM adoption translates into equitable instruction (Alicea et al., 2025).
- Data-tool research suggests that sustaining data use requires tools that are actionable and embedded in educators' everyday jobs. Investing in user-centered reporting and ongoing training helps ensure that monitoring systems remain usable and trusted over time (Kannan & Zapata-Rivera, 2022; Bowers, 2021; Bergamaschi et al., 2025; Rivet Education, 2025; Learning Forward, 2024).

Looking Ahead: AI and the Implementation Challenge

This brief summarizes some of the recent lessons learned across the past sixteen years of implementing instructional programs, interventions, and tools. As districts rapidly adopt AI-enabled tools, these lessons based on research become even more essential. In 2025, 53% of ELA, math, and science teachers reported using AI for school, an increase of more than 15 percentage points in one to two years (Doss et al., 2025). Yet many of those teachers are lacking the supports that determine whether the implementation of a new tool will strengthen instruction or create new risks for teaching and learning, such as professional development, district guidance, and policy. As of spring 2025, only 18% of principals reported that their school or district had provided guidance on AI use, with high-poverty schools further behind (13%) than more affluent ones (25%) (Doss et al., 2025). This is the same implementation problem described in this research brief: a tool is entering classrooms faster than the supports that make it effective.

AI raises the stakes within each phase of implementation. In initiating implementation, the shared instructional vision must include an explicit stance on the role of AI, including when it can be used, when it should not be used, and how it augments the district's instructional priorities. In developing implementation, teachers need new capabilities to use AI tools well. Coaching and professional learning will be essential in helping teachers build their knowledge in when to trust, adapt, or question an AI tool's output (TeachAI, 2025). In sustaining implementation, AI tools

update and change continuously in ways instructional materials never did, which makes monitoring for drift and maintaining coherence an ongoing rather than occasional task.

The opportunities are promising but still largely unproven on student outcomes. AI may help develop and refine a shared understanding of high-quality instruction, accelerate and enhance the feedback teachers receive on their practice, and identify real-time signals that help districts detect and address implementation drift earlier. These possibilities are promising because they strengthen the evidence-based implementation supports described in this brief, not because AI replaces them. The evidence base on AI's impact on teaching and learning is undeveloped, and districts should treat claims of outcome gains with appropriate caution. What the implementation research literature demonstrates is that the districts most likely to realize AI's promise will be those that apply the same lessons — coherent vision, sustained and job-embedded professional learning, fidelity balanced with adaptation, and continuous monitoring — that have proven to result in effective implementations and growth in teaching and learning.

References

Alicea, S., Davis, C., Foster, E., Hornak, R., Hyler, M., Morrison, A., Papay, J., Richardson, J., Schwartz, N., & Wechsler, M. (2025). *Defining curriculum-based professional learning: Building a common language.* Research Partnership for Professional Learning. https://rpplpartnership.org/internal-resource/plpositionpaper/

Allen, J. P., Pianta, R. C., Gregory, A., Mikami, A. Y., & Lun, J. (2011). An interaction-based approach to enhancing secondary school instruction and student achievement. *Science, 333*(6045), 1034–1037. https://doi.org/10.1126/science.1207998

Anders, J., Foliano, F., Bursnall, M., Dorsett, R., Hudson, N., Runge, J., & Speckesser, S. (2022). The effect of embedding formative assessment on pupil attainment. *Journal of Research on Educational Effectiveness, 15*(4), 748–779. https://doi.org/10.1080/19345747.2021.2018746

Anderson, E., Cunningham, K. M. W., & Richardson, J. W. (2024). Framework for implementing improvement science in a school district to support institutionalized improvement. *Education Sciences, 14*(7), 770. https://doi.org/10.3390/educsci14070770

Aust, L., Linker, J.-C., Eichholz, L., Schiffer, J., Nührenbörger, M., Selter, C., & Souvignier, E. (2026). Implementing formative assessment into school practice: A matter of structuring the intervention? *Journal of Teacher Education, 77*(2), 138–153 https://doi.org/10.1177/00224871251350680

Bailey, T. R., Colpo, A., & Foley, A. (2020). *Assessment practices within a multi-tiered system of supports (Document No. IC-18).* CEEDAR Center & National Center on Intensive Intervention. https://ceedar.education.ufl.edu/wp-content/uploads/2020/12/Assessment-Practices-Within-a-Multi-Tiered-System-of-Supports-1.pdf

Bergamaschi, A., Giambruno, C., Morales, P., Forkosh-Baruch, A., Hanuka, S., & Hershkovitz, A. (2025). *Empowering schools with data: How can we achieve effective use of educational dashboards for teachers and principals?* Inter-American Development Bank. https://doi.org/10.18235/0013561

Blase, K., Fixsen, D., Sims, B., & Ward, C. (2015). *Implementation science: Changing hearts, minds, behavior, and systems to improve educational outcomes.* National Implementation Research Network. https://nirn.fpg.unc.edu/resource/implementation-science-changing-hearts-minds-behavior-and-systems-to-improve-educational-outcomes/

Blazar, D., Heller, B., Kane, T. J., Polikoff, M., & Staiger, D. O., with Carrell, S., Goldhaber, D., Harris, D. N., Hitch, R., Holden, K. L., & Kurlaender, M. (2020). Curriculum reform in the Common Core era: Evaluating elementary math textbooks across six U.S. states. *Journal of Policy Analysis and Management, 39*(4), 966–1019. https://doi.org/10.1002/pam.22257

Bowers, A. J. (Ed.). (2021). *Data visualization, dashboards, and evidence use in schools: Data collaborative workshop perspectives of educators, researchers, and data scientists*. Teachers College, Columbia University. https://files.eric.ed.gov/fulltext/ED616742.pdf

Bryk, A. S., Sebring, P. B., Allensworth, E., Luppescu, S., & Easton, J. Q. (2010). *Organizing schools for improvement: Lessons from Chicago.* University of Chicago Press.

Bushman, J. (2021). Examining the impact of K–5 literacy coaches on teachers' implementation of literacy practices and the role of leadership (Doctoral dissertation, St. Cloud State University). https://repository.stcloudstate.edu/edad_etds/88/

Carbonari, M. V., Davison, M., DeArmond, M., Dewey, D., Dizon-Ross, E., Goldhaber, D., Hashim, A. K., Kane, T. J., McEachin, A., Morton, E., Muroga, A., Patterson, T., & Staiger, D. O. (2024). The impact and implementation of academic interventions during COVID-19: Evidence from the Road to Recovery Project. *AERA Open, 10*. https://doi.org/10.1177/23328584241281286

Carbonari, M. V., DeArmond, M., Dewey, D., Dizon-Ross, E., Goldhaber, D., Kane, T. J., McDonald, A., McEachin, A., Morton, E., Muroga, A., Salazar, A., & Staiger, D. O. (2026). Impacts of academic recovery interventions on student achievement in 2022 to 2023. *Educational Evaluation and Policy Analysis.* https://doi.org/10.3102/01623737251400377

Chu, E., McCarty, G., Gurny, M., & Madhani, N. (2022). *Curriculum-based professional learning: The state of the field.* Center for Public Research and Leadership. https://cprl.law.columbia.edu/sites/cprl.law.columbia.edu/files/content/CPRL-CBPL-Report-FINAL-0908.pdf

Colorado Department of Education. (2023). *Professional learning communities (PLCs): Strategy guide.* https://cde.state.co.us/uip/strategyguide-plcv2

Darling-Hammond, L., Hyler, M. E., & Gardner, M. (2017). *Effective teacher professional development*. Learning Policy Institute. https://doi.org/10.54300/122.311

Doss, C. J., Bozick, R., Schwartz, H. L., Chu, L., Rainey, L. R., Woo, A., Reich, J., & Dukes, J. (2025). *AI use in schools Is quickly increasing but guidance lags behind: Findings from the RAND survey panels.* RAND Corporation. RR-A4180-1. https://www.rand.org/pubs/research_reports/RRA4180-1.html

Fishman, B., Konstantopoulos, S., Kubitskey, B. W., Vath, R., Park, G., Johnson, H., & Edelson, D. C. (2013). Comparing the impact of online and face-to-face professional development in the context of curriculum implementation. *Journal of Teacher Education, 64*(5), 426–438. https://doi.org/10.1177/0022487113494413

Foorman, B., Beyler, N., Borradaile, K., Coyne, M., Denton, C. A., Dimino, J., Furgeson, J., Hayes, L., Henke, J., Justice, L., Keating, B., Lewis, W., Sattar, S., Streke, A., Wagner, R., & Wissel, S. (2016). *Foundational skills to support reading for understanding in kindergarten through 3rd grade* (NCEE 2016-4008). What Works Clearinghouse, Institute of Education Sciences, U.S. Department of Education.

Gage, N., MacSuga-Gage, A., & Detrich, R. (2020). *Fidelity of implementation in educational research and practice.* The Wing Institute. https://www.researchgate.net/profile/Jack-States-2/publication/345950691_Fidelity_of_Implementation_in_Educational_Research_and_Practice_Wing_Institute_Original_Paper/links/5fb2c6f3299bf10c3685e244/Fidelity-of-Implementation-in-Educational-Research-and-Practice-Wing-Institute-Original-Paper.pdf

Gersten, R., Haymond, K., Newman-Gonchar, R., Dimino, J., & Jayanthi, M. (2020). Meta-analysis of the impact of reading interventions for students in the primary grades. *Journal of Research on Educational Effectiveness, 13*(2), 401–427. https://doi.org/10.1080/19345747.2019.1689591

Implementation Science at UW. (n.d.). *Theories, models, & frameworks – Implementation science.* University of Washington. https://impsciuw.org/implementation-science/research/frameworks/

International Literacy Association. (2017). *Standards 2017: Reading specialist/literacy coach (Role 5).* https://www.literacyworldwide.org/get-resources/standards-for-reading-professionals/standards-2010-role-5

Jackson, C. K., & Makarin, A. (2018). Can online off-the-shelf lessons improve student outcomes? Evidence from a field experiment. *American Economic Journal: Economic Policy, 10*(3), 226–254. https://doi.org/10.1257/pol.20170211

Kannan, P., & Zapata-Rivera, D. (2022). Facilitating the use of data from multiple sources for formative learning in the context of digital assessments: Informing the design and development of learning analytic dashboards. *Frontiers in Education, 7*, 913594. https://doi.org/10.3389/feduc.2022.913594

Kraft, M. A., Blazar, D., & Hogan, D. (2018). The effect of teacher coaching on instruction and achievement: A meta-analysis of the causal evidence. *Review of Educational Research, 88*(4), 547–588. https://doi.org/10.3102/0034654318759268

Learning Forward. (2022). *Standards for professional learning.* https://standards.learningforward.org/standards-for-professional-learning/

Learning Forward. (2024). *Research strengthens curriculum-based professional learning.* The Learning Professional. https://learningforward.org/journal/curriculum-based-professional-learning/research-strengthens-curriculum-based-professional-learning/

Learning Forward. (2025). *A roundup of the latest research on curriculum-based professional learning.* The Learning Professional. https://learningforward.org/journal/measuring-learning/a-roundup-of-the-latest-research-on-curriculum-based-professional-learning/

Lee, L., & Smith, K. G. (2021). *Self-study guide for evidence-based coaching for literacy: PreK–grade 12* (REL 2021-062). Regional Educational Laboratory Southeast, National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. https://ies.ed.gov/ncee/rel/Products/Region/southeast/Publication/4039

Lomos, C., Hofman, R. H., & Bosker, R. J. (2011). Professional communities and student achievement—A meta-analysis. *School Effectiveness and School Improvement, 22*(2), 121–148. https://doi.org/10.1080/09243453.2010.550467

Lynch, K., Hill, H. C., Gonzalez, K. E., & Pollard, C. (2019). Strengthening the research base that informs STEM instructional improvement efforts: A meta-analysis. *Educational Evaluation and Policy Analysis, 41*(3), 260–293. https://doi.org/10.3102/0162373719846616

Lyon, A. R. (2017). *Implementation science and practice in the education sector.* Substance Abuse and Mental Health Services Administration (SAMHSA). https://education.uw.edu/sites/default/files/Implementation%20Science%20Issue%20Brief%2007 2617.pdf

National Association of School Psychologists. (2018). *MTSS and the keys to success.* https://www.nasponline.org/assets/Documents/Resources%20and%20Publications/Resources/M TSS%20and%20the%20Keys%20to%20Success.pdf

National Center on Intensive Intervention. (n.d.). *Fidelity monitoring tools: Implementation tools.* https://intensiveintervention.org/implementation-intervention/fidelity

National Institute for Excellence in Teaching. (2020). *High-quality curriculum implementation: Connecting what to teach with how to teach it.* https://www.niet.org/assets/1da4c1fbd6/high-quality-curriculum-implementation.pdf

Office of Population Affairs. (2020). *Fidelity monitoring tip sheet.* U.S. Department of Health and Human Services. https://opa.hhs.gov/sites/default/files/2021-03/fidelity-monitoring-tip-sheet-2020.pdf

Petscher, Y., Cabell, S. Q., Catts, H. W., Compton, D. L., Foorman, B. R., Hart, S. A., Lonigan, C. J., Phillips, B. M., Schatschneider, C., Steacy, L. M., Terry, N. P., & Wagner, R. K. (2020). How the science of reading informs 21st-century education. *Reading Research Quarterly, 55*(S1), S267–S282. https://doi.org/10.1002/rrq.352

Poortman, C. L., Brown, C., & Schildkamp, K. (2022). Professional learning networks: A conceptual model and research opportunities. *Educational Research, 64*(1), 95–112. https://doi.org/10.1080/00131881.2021.1985398

Prenger, R., Poortman, C. L., & Handelzalts, A. (2021). Professional learning networks: From teacher learning to school improvement? *Journal of Educational Change, 22*, 13–52. https://doi.org/10.1007/s10833-020-09383-2

Research Partnership for Professional Learning. (2022). *From a RiPPLe to a wave: Advancing educational equity through teacher professional learning (End of year report)*. Annenberg Institute at Brown University. https://annenberg.brown.edu/sites/default/files/RPPL_Report_2022.pdf

Research Partnership for Professional Learning. (2025). *Shared measurement toolkit (overview).* https://edinstruments.org/toolkits/assessing-ela-and-math-curriculum-shifts-practical-guide-measurement-and-progress

Rhode Island Department of Education. (n.d.). *Multi-tiered system of supports in a comprehensive reading program.* https://ride.ri.gov/sites/g/files/xkgbur806/files/IAC/StructuredLiteracy/MTSS-Reading-WhitePaper.pdf

Rivet Education. (2025). *The supply and demand of curriculum-based professional learning*. https://riveteducation.org/supply-and-demand-cbpl-2025/

Rivet Education. (2026). *The supply and demand of curriculum-based professional learning.* https://riveteducation.org/wp-content/uploads/2026/05/Rivet-Education-CBPL-Report-2026.pdf

Salinger, T., Moorthy, S., Toplitz, M., Jones, W., & Rosenthal, E. (2010). *Implementation matters: Systems for success. A descriptive study of READ 180 in urban middle schools.* American Institutes for Research.

Short, J. B., & Hirsh, S. (2020). *The elements: Transforming teaching through curriculum-based professional learning (Challenge paper).* Carnegie Corporation of New York. https://media.carnegie.org/filer_public/47947a81-4fdf-421b-a5e8-fbb211898ee0/elements_report_november_2020.pdf

Short, J. B., & Hirsh, S. (2022). *Transforming teaching through curriculum-based professional learning: The elements.* Corwin.

Sortwell, A., Trimble, K., Ferraz, R., Geelan, D. R., Hine, G., Ramirez-Campillo, R., Carter-Thuiller, B., Gkintoni, E., & Xuan, Q. (2024). A systematic review of meta-analyses on the impact of formative assessment on K–12 students' learning: Toward sustainable quality education. *Sustainability, 16*(17), 7826. https://doi.org/10.3390/su16177826

Steiner, E. D., Covelli, L., Tekkumru-Kisa, M., & Diliberti, M. K. (2025). *Prioritizing curriculum-based professional learning for mathematics teachers: District, principal, and teacher perspectives from the American Educator Panels* (RR-A2836-7). RAND Corporation. https://www.rand.org/pubs/research_reports/RRA2836-7.html

TeachAI. (2025). *AI guidance for schools toolkit.* https://www.teachai.org/toolkit.

Westall, J., & Cummings, A. (2023). *The effects of early literacy policies on student achievement* (EdWorkingPaper No. 23-788). Annenberg Institute at Brown University. edworkingpapers.com/ai23-788

What Works Clearinghouse. (2022). *Providing reading interventions for students in grades 4–9* (WWC 2022007). Institute of Education Sciences, U.S. Department of Education.

Wisconsin Department of Public Instruction. (n.d.). *RtI, MTSS, and universal screening – An overview.* https://wisconsin.pressbooks.pub/mtssrtisped/chapter/chapter-1-rti-mtss-and-universal-screening-an-overview/

Xuan, Q., Cheung, A., & Sun, D. (2022). The effectiveness of formative assessment for enhancing reading achievement in K–12 classrooms: A meta-analysis. *Frontiers in Psychology, 13*, 990196. https://doi.org/10.3389/fpsyg.2022.990196

Young, C., Hart, H., Magwaza, L., & Pollard, G. (2026). *Understanding 5Essentials school averages and school climate malleability.* University of Chicago Consortium on School Research.