Houghton Mifflin Harcourt

RESEARCH FOUNDATIONS:

EVIDENCE FOR HMH PROFESSIONAL SERVICES

THE HMH RESEARCH MISSION STATEMENT

Houghton Mifflin Harcourt® (HMH®) is committed to developing innovative educational programs that are grounded in evidence and efficacy. We collaborate with school districts and third-party research organizations to conduct research that provides information to help improve educational outcomes for students, teachers, and leaders at the classroom, school, and district levels. We believe strongly in a mixed-methods approach to our research, an approach that provides meaningful and contextualized information and results.

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INTRODUCTION

The United States government, local school districts, and educational organizations have spent billions of dollars to bring "effective" professional development programs to scale. Teachers' professional development is estimated to cost up to $18 billion a year, more than half of which is spent on workshops (TNTP, 2015). The Every Student Succeeds Act (ESSA) allocates more than $2 billion for teacher professional development. While giving states more discretion over professional development, ESSA calls for programs to be "sustained (not stand-alone, 1-day, or short-term workshops), intensive, collaborative, job-embedded, data-driven, and classroom-focused" (ESSA, 2015).

Recent efforts to study professional development programs that incorporate these features, however, have found contradictory results (Hill, Beisiegel, & Jacob, 2013; TNTP, 2015). This is especially true for those evaluations that have randomly assigned participants in an effort to pinpoint a causal relationship between the professional development and student achievement. In a study that examined teacher professional development in three large school districts and one charter school network, TNTP (2015) found little evidence of a relationship between the professional development that teachers received and instructional improvement. Efforts to identify those features of professional development programs that are most responsible for student achievement have been largely unsuccessful (Hill, Beisiegel, & Jacob, 2013).

The positive relationship between teacher quality, teacher practice, and student achievement has long been accepted as fact in the education field; that is, educators have assumed that high-quality teachers use high-quality instructional practices that result in high levels of student achievement. In order to improve student achievement, professional development programs seek to improve teacher quality through delivering knowledge of accepted, research-based instructional practices and then (sometimes) delivering training and coaching to the teachers to help them implement these practices in the classroom.There has even emerged a "consensus" of what effective professional development should look like: it should be sustained, intensive, and contextual (Knight, 2009). Similarly, it should be focused on content, include active learning, provide a coherent approach across the school goals, teacher knowledge, and student needs, be of sustained duration, and include collaborative participation across groups of teachers (Desimone & Garet, 2015). Only recently, however, has the field begun to rigorously study the links between teacher professional development, instructional implementation, and student improvement.

HMH Professional Services is taking the lead in not only connecting with teachers, schools, and districts through collaborative professional learning experiences, but also in studying and evaluating the practices and features of these services. Every district, school and teacher is unique, and it is only through a thorough understanding of the evidence base and efficacy of professional services that HMH is able to customize a collaborative approach to improve teacher practices and student achievement.

INTRODUCTION: THE EVIDENCE BASE AND EFFICACY OF *HMH PROFESSIONAL SERVICES*

HMH Professional Services collaborates with educators across three key areas of service and support to provide a comprehensive professional learning experience unique to the needs of every school or district. HMH provides **Program-Based, Technical, and Practice-Based Services** that draw upon years of efficacy research, including *Implementation Matters: Systems for Success* (Salinger et al., 2010), which detailed what is needed for a successful adoption and implementation of *READ 180*. This report, written in partnership with the American Institutes for Research (AIR) and the Council of Great City Schools (CGCS), identified the key characteristics of effective implementations across **three phases – initiating, developing, and sustaining.** The lessons learned from this report drive the co-development of goals to ensure meaningful and lasting change for schools and districts and academic success for all students. *HMH Professional Services* collaborates with schools and districts to enable effective implementation across these three phases:

Phase 1: Initiating Implementation

- Foundation of support that establishes a **common understanding and strong sense of purpose**
- Clear directions and expectations from district leaders to build buy-in

Phase 2: Developing Implementation

- Participation in initial training and ongoing professional development
- Deep **understanding of the program's strengths and of the students whom it can best serve** to inform placement decisions
- Well-defined criteria for student exit from the program
- Clear guidelines and expectations for on-model classroom implementation
- Consistent and sensible policies and **procedures for using data to monitor student progress** and inform instruction
- Consistent and sensible policies and procedures for monitoring teachers' implementation of the intervention
- Opportunities for collaboration and communication among school staff
- In-classroom support, coaching, and job-embedded professional development to promote on-model implementation
- **Well-defined criteria for determining program success**

Phase 3: Sustaining Implementation

- Training and support for individuals to play an intermediary role among district level staff, school-based teachers, coaches, and administrators
- Continued stressing of clear guidelines and expectations for implementation
- Sustained and intensive **monitoring of student progress and teacher implementation** and collaboration

HMH Professional Services works with schools and districts to co-construct an implementation plan that considers these lessons and applies them in an integrated, unified, and customized approach through program-based, technical, and practice-based services. These services are available through all three phases of the implementation: initiating, developing, and sustaining.

PROGRAM–BASED SERVICES

The program-based services team helps schools and districts **initiate and sustain program implementation in order to realize improvement in student achievement.** The program-based services team collaborates with the school districts to build capacity across customized partnership elements that can include: fidelity of implementation, professional learning courses, collaboration between teachers, sustained and intensive coaching, online webinars, data analysis, and other elements designed to meet needs specific to the district. The services include Getting Started Courses, Follow-Up Courses, and Individual and Team Coaching to ensure that teachers are building expertise with program content, strategies, and technology.

Getting Started Courses give teachers the knowledge they need to understand and begin implementing all the components and content of the program. Follow-Up Courses provide teachers with practical understanding of program components, technology, tools, and data to track student progress, with hands-on professional learning and application customized to teachers' needs. Grounded in deep research around adult learning, Individual and Team Coaching—including lesson modeling, peer collaboration, and feedback—drives instructional excellence and change in the classroom.

TECHNICAL SERVICES

The technical services team provides technical environment advice, product support, **technical staff training, installation, reporting and data services, and web-based hosting** to ensure fully functional school- and district-wide implementations.

Up-front technical services include reviewing the district's technical capacity and parameter settings, and training for their technical team. A Technical Services Manager acts as a single point of contact for the team. The Technical Services Manager, an experienced technical expert, also has direct access to a team of dedicated technologists, who understand the district's environment and challenges. The Technical Services team works to leverage best practices, prevent incidents, and optimize instructional time and the learning experience. By providing access to data reporting and analytics, HMH enables strategic decisions about the district's technology to ensure success in the long term.

PRACTICE–BASED SERVICES

The practice-based services team brings best practices and **innovative approaches to instruction, rigorous curriculum design, data analysis, blended learning, and leadership** to equip educators with the most effective, research-based instructional strategies. The team collaborates with educators to support a common language for learning and the culture for success. Beginning with a needs assessment or strategic plan, HMH teams work to customize courses, coaching, and leadership experience to raise student achievement and transform school-wide performance. With the research and deeply knowledgeable experience of experts and coaches from Math Solutions and International Center for Leadership in Education (ICLE), HMH partners with educators to meet the unique goals of schools or districts.

PROGRAM-BASED SERVICES

The Program-Based Services team supports schools and districts in initiating and sustaining program implementation. This support can include ***Professional Learning Courses***, ***Individual*** and ***Team Coaching***, and ***Collaboration Strategies*** to ensure that teachers are building expertise with program content, strategies, and technology.

TECHNICAL SERVICES

The Technical Services team supports schools and districts with technical environment advice, ***product support, technical staff training, installation, reporting*** and ***data services***, and web-based hosting to ensure fully functional school- and district-wide implementations.

PRACTICE-BASED SERVICES

The Practice-Based Services team, including ***ICLE*** and ***Math Solutions***, supports schools and districts with best practices and innovative approaches to instruction, data, blended learning, and leadership. The team equips educators with effective, research-based strategies and supports a common language for learning and the culture for success.

HMH Professional Services collaborates with districts across three service areas.

MANAGING ACHIEVEMENT PROTOCOL

Building on the work of Dean Fixsen and his colleagues at the National Implementation Research Network, *HMH Professional Services* developed the Managing Achievement Protocol (MAP), a five-step process that integrates program-based, practice-based, and technical services. MAP consists of Five Key Success Factors that enable fidelity of implementation of evidence-based educational programs in order to maximize student results:

1. Make a commitment and build a strong team: Successful implementation depends on strong and clearly articulated commitment from a leader that holds everyone on the team accountable and helps them to understand their role. The team studies the problems and potential solutions to recommend a course of action. It is important to have a clear view of the needs, buy-in for the potential solutions, and ways to assess progress toward improving student outcomes. The team develops a plan that outlines "the what, the who, and the when" and serves as a blueprint for success.

2. Lay a foundation for success: Adequate preparation is a critical first step to help any innovation get off to a good start by allocating people and space, scheduling activities, developing materials, and training teachers and staff. MAP helps district leaders plan for success by laying the groundwork for effective implementation with technology, teachers, and training. For each of these three categories, MAP helps the district answer questions about "the what, the who, and the when."

3. Focus on classroom teaching practices: Based on district goals, coaches and teachers work collaboratively on setting and meeting instructional goals to improve teaching skills and student learning, while remaining focused on:

- Establishing an effective teaching and learning environment
- Modeling and using high-leverage teaching practices in the classroom
- Using data and formative assessment to plan and adjust instruction

The research-based coaching model for teachers follows a five-step process: Analyze (student data to establish goals), Set (student learning goals), Learn (new instructional skills), Apply (learning in the classroom), and Review Progress (and reflect on results). Coaching provides support to extend teachers' content knowledge and instructional strategies, help them assess student understanding, and develop high-quality lessons to ensure student engagement.

4. Implement ongoing progress monitoring: Once actionable, meaningful goals for improvement have been set, it's critically important for districts to track progress against those goals. In developing an effective reporting plan, districts should consider which metrics define ultimate success, which metrics will help the district periodically monitor progress, and the types of meetings that will enable oversight and monitoring. HMH helps districts capture key classroom data and provide customized reports throughout the year to monitor progress, make instructional decisions, course correct, and drive home real results for students, teachers, and leaders.

5. Build capacity for the long term: The most successful improvement programs build on a foundation of sustained support that expands internal resources to manage ongoing effective instruction. HMH collaborates with districts to build capacity with services, including extending content knowledge for teachers, observational walkthroughs for leaders, and side-by-side coaching with district coaches. Team members co-develop an understanding of how to build and maintain a community, monitor fidelity to the instructional models, analyze school or district data, and support classroom teachers through instilling best practices and strengthening expertise. The technical teams proactively monitor necessary upgrades and implementation needs to ensure that the district gets the most from the programs.

EVIDENCE BASE

HMH Professional Services is informed by an extensive evidence base of best practices for school, district, and system improvement. In the following sections, effective practices, frameworks, and expert opinion from the research literature is presented alongside descriptions of how this evidence base has been translated into the program and practices of *HMH Professional Services*.

- **Planning: Goal Setting and Focusing Direction**
- **Collaboration: Co-development and Capacity Building**
- **Coaching: Sustained and Intensive**
- **Personalization: Teacher Mindset, Motivation, Agency, and Engagement**
- **Pedagogy: Deepening Learning for Teachers and Students**
- **Technology: Accelerating Learning for Teachers and Students**
- **Measurement: Progress Monitoring and Feedback**

EVIDENCE BASE: PLANNING

FOCUSING DIRECTION AND GOAL SETTING

• The vast majority of teachers are not highly satisfied with their professional development and do not think that PD has improved. The Bill & Melinda Gates foundation surveyed more than 1,300 teachers in 2014. One finding was that the types of professional development that teachers find effective are often different from the types of PD that administrators would like to expand in their district. This disconnect speaks to the **importance of involving teachers in the planning process for a PD program** (Bill & Melinda Gates Foundation, 2014).

• An essential component to system improvement is **focusing direction** and building the skills and knowledge needed to be effective, including pedagogy skills and change skills. Four elements needed to achieve coherence are:
1. Direction that is **purpose driven**, and fostered by compassionate, respectful, effective leaders.
2. Focusing on **goals that impact** through a process that is collaborative, efficient, and engaging.
3. Developing **a clarity of strategy that** will support change and avoid superficiality and resistance.
4. **Change leadership** that provides clarity of purpose, supports early innovators, builds the capacity of others, creates a culture of collaboration, and recognizes success (Fullan & Quinn, 2016).

• The Carnegie Foundation for the Advancement of Teaching has identified six core principles of improvement, two of which directly speak to planning and focusing direction. The first core principle is to **"Make the work problem-specific and user-centered."** Every improvement effort must answer the question: "What is the problem we are trying to solve?" Then, the leadership must engage the key stakeholders and participants in a co-development orientation so that the improvement plan has a greater chance of buy-in and success. The second core principle is to "See the system that produces the current outcomes." The improvement team must understand the conditions present in the system and how those conditions shape the results. Understanding followed by careful planning can lead to improvement (Bryk, Gomez, Grunow, & LeMahieu, 2015).

• The importance of planning and goal setting is detailed by Barber, Rodriguez, and Artis (2016) in *Deliverology in Practice*. After extensive research of improvement efforts in districts, Barber and colleagues recommend that **school leaders adopt an educational program delivery approach** that focuses on four questions:
1. What are you trying to do?
2. How are you planning to do it?
3. At any given moment, how will you know whether you're on track to succeed?
4. If you're not on track, what are you going to do about it?

• An extensive analysis of struggling schools demonstrated that principals that turn around their schools tend to diagnose problems early, identify and communicate priorities, **develop (and continuously revise) action plans, establish a clear mission and vision,** foster buy-in among staff, students, and families, cultivate leadership in adults across the school, build a strong team to help shoulder leadership responsibilities, build trust and respect with and amongst staff, manage change with sensitivity and optimism, and model self-reflection (Desravines, Aquino, & Fenton, 2016).

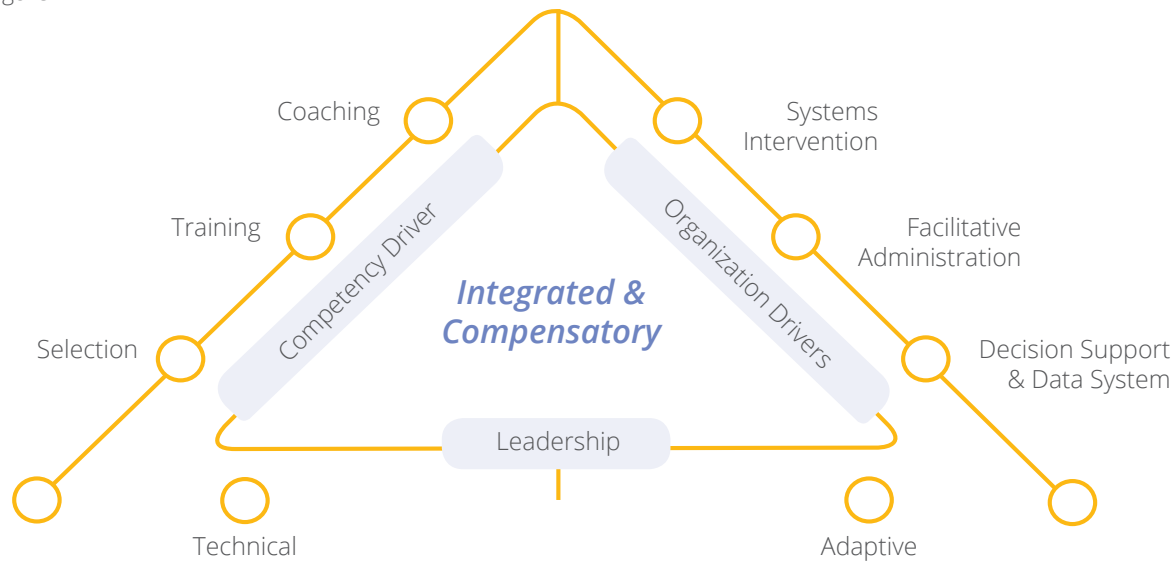
• An effective implementation depends on a plan that **defines clear roles for every member of the team.** In a coaching partnership, the roles include those of the learner, the coach and mentor, and the administrator. The roles of all members of the partnership must be aligned toward achieving the prioritized system goals (Taylor & Chanter, 2016).

• Planning, goal setting, and focusing direction must be revisited consistently throughout the implementation process. Dean Fixsen (2012) detailed the four stages of a successful implementation:
1. Exploration stage: Needs surveys are conducted. Teams are developed to study the problems and potential solutions and to recommend a course of action. Plan for the subsequent stages of implementation.
2. Installation stage: Gather the resources needed to implement the innovation, including people, space, scheduling time and activities, development of materials, selection and initial training of teachers and staff, and discussions with parents and stakeholders.
3. Initial implementation stage: Teachers and staff first begin to use an innovation. They may decide to modify the innovation to make it more helpful.
4. Full implementation stage: After a year or two of full implementation, the innovation has become standard practice. It is consistently implemented as intended and reliably producing student benefits year after year.

HOW *HMH PROFESSIONAL SERVICES* DELIVERS

HMH Professional Services collaborates with districts to co-develop a plan for building capacity and improving instruction across the district. The HMH approach to improvement science is based on the work of Dean Fixsen, who proposed three essential components of implementation: competency, organization, and leadership (see Figure 1).

Performance Assessment
Figure 1



Competency Drivers are involved in selecting, training, and coaching teachers and staff in how to implement the core components of a program fully and faithfully. Organization Drivers, such as the superintendent, senior leaders, and school administrators, participate by showing full commitment to the program implementation. Leadership holds the triangle together by supporting the logistical, administrative, personnel, and funding factors, as well as by taking action when needed to respond to external influences that might threaten program implementation.

EVIDENCE BASE: COLLABORATION

CO-DEVELOPMENT AND CAPACITY BUILDING

• While the teachers surveyed by the Gates Foundation (Bill & Melinda Gates Foundation, 2014) recognized the value of collaboration, most reported they were not satisfied with the types of collaboration in their school. Teachers reported that their current collaboration suffers from a lack of engagement, a poor use of time, and poor planning and execution, whereas their ideal state of collaboration would be energizing, supportive, and involve hands-on and scenario-based activities. The few teachers that currently experience effective collaboration report **benefits such as planning specific lessons, developing teaching skills and content knowledge, aligning curriculum to standards and expectations, reviewing student data, and differentiating instruction.**

• A nationwide survey of 1,047 educators – the 2016 HMH Educator Confidence Report – asked teachers about areas of optimism in education. The survey found that 44% of educators are optimistic about "collaborating with colleagues to develop engaging/effective instruction for students." This was the number one area of optimism reported by teachers (Houghton Mifflin Harcourt, 2016).

• **Cultivating collaborative cultures** and developing social capital are essential to improving coherence in a school district. Any significant change that is to occur within a group must be initiated by that group. Talented individuals are attracted to coherent systems with high social capital and they, in turn, add to the social capital. The **four elements** of cultivating collaborative cultures are:
1. Fostering a mindset and **culture of growth** that values teachers and leaders, and supports learning, innovation, and action.
2. **Learning leadership** that builds human, social, and decisional capital amongst its teachers by modeling learning and shaping culture.
3. A collective **capacity building** that develops a growth mindset, cultivates collaborative student learning, builds educators' knowledge and skills, engages everyone with clear goals, fosters learning across roles, and follows a cycle of learning, application, reflection, and dialogue.
4. Combining a strong learning design that changes behavior with **collaborative work** to avoid frustration, surface learning, and (merely) personal growth and to achieve sustained and systematic shifts in learning (Fullan & Quinn, 2016).

• One of the Carnegie Foundation for the Advancement of Teaching principles of improvement speaks to collaboration: **"Accelerate improvements through networked communities."** Networked improvement communities are defined by four characteristics: focused on a well-defined goal; guided by a deep understanding of the problem, the system that creates the problem, and have a theory of improvement; disciplined by the rigor of improvement science; and coordinated to accelerate the development, assessment, and refinement of interventions across educational systems (Bryk, Gomez, Grunow, & LeMahieu, 2015).

• **A collaborative partnership is only as strong and effective as the relationships** within that partnership. The basis of effective relationships is trust, which is built through consistent and predictable actions, modeling of expectations, communication and empathy, and competence with research-based expertise. A foundation of trust will allow coaches and learners to develop the rapport that leads to a meaningful collaboration (Taylor & Chanter, 2016).

• A collaborative environment allows educators to develop collective efficacy and professional capital. Professional capital is composed of human capital (the talent of individuals); social capital (the collaborative power of the group); and decisional capital (the wisdom to make sound judgments about learners). By increasing collaboration, schools and districts can increase teachers' social capital. Increasing social capital can increase human capital; less experienced and skilled teachers that work in a collaborative environment can improve (Hargreaves & Fullan, 2012).

• Schools in British Columbia, Hong Kong, Shanghai, and Singapore more fully integrate professional development into the education system than in the United States (Jensen, Sonnemann, Roberts-Hull, & Hunter, 2016). **Teachers spend more time collaborating with each other in these countries than in the United States.** The teachers constantly observe, analyze, and learn from each others' classrooms. Collaborative teams follow a continuous improvement cycle in which they identify a problem, collect data, research potential solutions, formulate a plan to evaluate their customized intervention, implement their intervention, collect and analyze the data, revise their intervention, and repeat until they achieve their desired results.

HOW *HMH PROFESSIONAL SERVICES* DELIVERS

HMH Professional Services collaborates with the district to co-develop a plan for improvement, goals for teacher and student learning, efficient and effective technology deployment, and metrics to monitor progress for program implementation and student achievement. This collaboration between the Professional Services team and the district can serve as a model for collaboration between district leaders, school administrators, and teachers. Ongoing professional development helps the district build and maintain a community of learners working together to improve instruction.

The Professional Services team works with the partner district to co-develop a collaboration plan, which may include Professional Learning Communities, Cadre meetings, and/or other formal or informal opportunities for teachers to meet and collaborate on improving their instruction.

EVIDENCE BASE: COACHING

SUSTAINED AND INTENSIVE

• The Gates Foundation survey (Bill & Melinda Gates Foundation, 2014) found that the majority of teachers were not satisfied with coaching, but the survey also found that intensive coaching is relatively rare. **Only half of the teachers reported participating in formal coaching/mentoring activities during the last 12 months,** and only 24% of those teachers reported receiving coaching on a weekly basis. In focus groups, teachers identified the most important attributes of successful coaches: knowing what it is like to be in their shoes, being an expert in their subject area, giving specific actions they can try in the classroom immediately, and being well-trained at providing feedback.

• Effective coaching - whether it is individual, group-based, delivered through a webinar, or a Professional Learning Community, or is a mixture of several methods – is **student-centered and learner driven.** The coaching partnership proceeds through a cycle that includes the coach and learner collaborating to identify problems and goals, the coach modeling target strategies or observing and collecting evidence, the coach and learner reflecting and agreeing on action steps, the learner taking the action steps, and the learner reflecting and again collaborating with the coach to refine their practice (Taylor & Chanter, 2016).

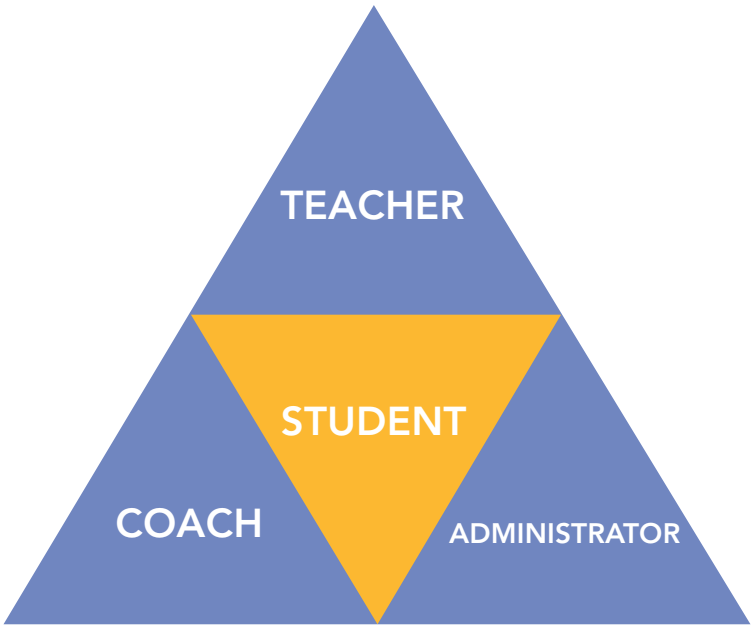
• Extensive research has demonstrated that the most effective and successful form of professional development is in-classroom coaching. Instructional coaching allows teachers to retain and put into practice the majority of what they learn from their coaches as opposed to out-of-classroom workshops, where teachers neither retain nor use the majority of what they learn. Research has demonstrated that **effective coaching must be sustained, intensive, and contextual** (Knight, 2009). As with all forms of professional development, the relationship between the teacher and the coach is critical. Instructional coaches work with a teacher on a co-constructed goal around instructional strategies or student learning. The coach is a partner for the teacher, who helps them find resources, model effective practices, observe as teachers implement instructional strategies, and collaboratively explore student data (Knight, 2007).

• The International Society for Technology in Education (ISTE) embraces a professional development model that includes effective coaching, collaborative communities, and a technology-rich environment. Effective coaching is contextual, relevant, and ongoing. Collaborative communities can be school-based or online professional learning communities that allow teachers to learn from each other through observation, imitation, and modeling. ISTE recommends that school districts chose a coaching model that best fits the needs of their teachers, whether it is cognitive coaching, instructional coaching, or peer coaching (Beglau et al., 2011).

• Professional coaches in other industries, such as sports and medicine, have long had a role in helping professionals to improve their practice. The most effective coaches help their "students" move past the plateaus that are frequently reached without improving their practice. **These coaches help students understand the professionalism of their occupation and the centrality of improvement, not judgment, to a successful career** (Gawande, 2011).

HOW *HMH PROFESSIONAL SERVICES* DELIVERS

The Partnership Coaching Model puts students at the center of the collaboration between teachers, coaches, and administrators. Coaches foster this culture of collaboration at the school and district level by building strong relationships with teachers.



The Partnership Coaching Model

EVIDENCE BASE: PERSONALIZATION

TEACHER MINDSET, AGENCY, MOTIVATION, AND ENGAGEMENT

• The teachers surveyed by the Gates Foundation suggested that, ideally, professional development should be personalized and adapted to different contexts. Most teachers, however, viewed professional development as a compliance, rather than a learning activity. Almost 20% of teachers reported that they have no choice in their professional development activities, and only 30% of teachers reported that they are able to choose their professional development activities most or all of the time. Not surprisingly, the teachers that are able to choose their professional development activities are much more satisfied with those activities: on a 10-point scale, 61% of teachers that never choose rated their PD a 6 or below, while 40% of those who always choose rated their PD a 9 or 10 (Bill & Melinda Gates Foundation, 2014).

• One of the Carnegie Foundation for the Advancement of Teaching's six core principles of improvement is that **"Variation in performance is the core problem to address."** Most improvement efforts result in a wide variability of performance, but this variability is not often enough the focus of investigation. Systems must identify not only what works, but what works for whom and under what conditions. An understanding of the variability in performance amongst districts, schools, teachers, and students will allow researchers and leaders to target and personalize effective solutions (Bryk, Gomez, Grunow, & LeMahieu, 2015).

• **Teacher agency is the capacity of teachers to shape their own professional learning** (PL) and to contribute to the PL of their colleagues. Leaders can follow seven steps to cultivate an environment of engaging PL: consult teachers in making PL decisions, organize the school day to foster collaboration, involve and support teachers in analyzing data, establish learning communities, allow teachers to choose who they work with and the focus of their PL, ensure that PL is used for growth, not evaluation, and resist scaling up or mandating a specific form of PL. Sufficient time and effective leadership are essential to building the capacity necessary to implement these steps and transform professional learning in schools and districts (Calvert, 2016).

• Many school districts and other providers of teachers' professional development are moving toward a more personalized model of professional development, taking a cue from the movement toward personalized learning for students. This approach often focuses on short modules, which teachers can choose and then complete on their own time. The modules can incorporate aspects of gamification, micro-credentialing, and online professional development communities. These districts hope that, **by allowing teachers to choose their own professional development courses and activities, the professional development will be better matched to the teachers' needs.** Teachers will be able to set goals, find resources to help them meet those goals, track their progress, and get the feedback from supervisors and colleagues (Brown, 2016).

• Personalized professional development allows teachers to pursue learning to support their instructional needs at their own pace. Teachers can **take courses via online professional learning portals, opportunities offered by the school, or off-campus settings.** In this process, teachers learn new competencies, demonstrate what they have learned in their classrooms, and submit evidence of mastery for assessment. As teachers build their knowledge and skills, they earn badges to demonstrate their expertise. Although limited research has been conducted on the merits of micro-credentials and badges, some academics have argued that they have the potential to be used as valid indicators of knowledge, skills, and achievements (Clayton, Elliot, & Iwata, 2014).

HOW *HMH PROFESSIONAL SERVICES* DELIVERS

HMH Professional Services works with the district to personalize professional development through a blended approach including webinars, coaching, and other opportunities for teachers to shape their own learning. Teachers benefit from a professional learning experience that is ongoing and focused on goals addressing their unique needs. Taking time to analyze, reflect on, and explore new ideas as partners, coaches support teachers' understanding and application of new content knowledge and effective instructional practices. The coaching cycle diagram illustrates the path teachers engage in with their coaches.

EVIDENCE BASE: PEDAGOGY

DEEPENING LEARNING FOR TEACHERS AND STUDENTS

• The Technological Pedagogical and Content Knowledge (TPACK) framework for teacher knowledge is an interaction among three bodies of knowledge - content, pedagogy, and technology - needed to successfully integrate technology use into teaching (see Figure 1). Teachers must have some background knowledge of technology, pedagogy, and content in order to build upon that knowledge and change their beliefs and behaviors. As with students, it is important for teachers to obtain new knowledge within their zone of proximal development by building on their foundations of TPACK. **Teachers with relative strengths in one or more of these areas can use that knowledge to scaffold the acquisition of new knowledge in other areas.** For example, a teacher with a relatively low knowledge of new technology, but rich knowledge of pedagogy and content can use that knowledge base to build an understanding of how technology can be used in the classroom. By assessing teachers' TPACK before a professional development program, teacher educators can adjust their teaching to the teachers' strength and weaknesses (Koehler, Mishra, & Cain, 2013).

• Improving systems and achieving coherence across schools can be enabled by a focus on **deepening learning and pedagogy.** By making good pedagogy the driver of instructional change, leaders can ensure that they are focused on the goal of student learning. Deep learning outcomes should focus on six competencies (the 6 Cs): communication, critical thinking, collaboration, creativity, character, and citizenship. The **three elements** that deepen learning are:

1. Systems that **develop clarity of learning goals** and build a shared understanding of the goals by students, educators, and parents.
2. **Building precision in pedagogy** through development of a common language and knowledge base, identification of proven pedagogical practices, and demonstration of clear causal links to impact.
3. Identifying processes that will **shift practices through capacity building,** such as leaders that model being lead learners, shape a culture that fosters learning and innovation, and build capacity vertically and horizontally (Fullan & Quinn, 2016).

• One important aspect of pedagogical knowledge is an understanding of how to drive student improvement. One of the core principles of improvement identified by the Carnegie Foundation for the Advancement of Teaching is **"Anchor practice improvement in disciplined inquiry,"** which stresses that teachers need to understand how their teaching practices are (or are not) contributing to student improvement. Teachers that engage in cycles of "Plan, Do, Study, Act" are able to learn fast, fail fast, and improve quickly (Bryk, Gomez, Grunow, & LeMahieu, 2015).

• Teachers that have both deep content knowledge and pedagogical knowledge are able to help their students build an understanding of mathematics, rather than simply learning procedures. These teachers have made the transition from telling students to asking students. Rather than covering the curriculum, they uncover the curriculum for students (Burns, 2014).

• Coe and colleagues (2014) identified six components of great teaching: **pedagogical content knowledge, quality of instruction, classroom climate, classroom management, teacher beliefs, and professional behaviors.**

• Teachers in four high-performing educational systems – Finland, Japan, Shanghai and Hong Kong – **specialize in content areas and acquire pedagogical content knowledge so that they have a deep understanding of the subject areas they will teach** and how their future students will learn that content. In the United States, teachers' expertise appears to grow during their first three years before leveling out. But in the other countries that were studied, teachers' expertise continues to grow throughout their careers. These teachers are learning from other teachers, from their professional development, from the research projects they take on, and from the data and feedback they get on their teaching (Jensen, Sonnemann, Roberts-Hull, & Hunter, 2016).

• The Programme for the International Assessment of Adult Competencies (PIAAC) tested the cognitive skills of more than 160,000 adults across 24 developed countries and provided data for a study that found that American educators outscored teachers in 13 of the 23 developed countries in literacy skills. **American teachers scored better than only four countries in this measure of mathematical problem-solving skills** (Hanushek, Piopiunik, & Wiederhold, 2016).

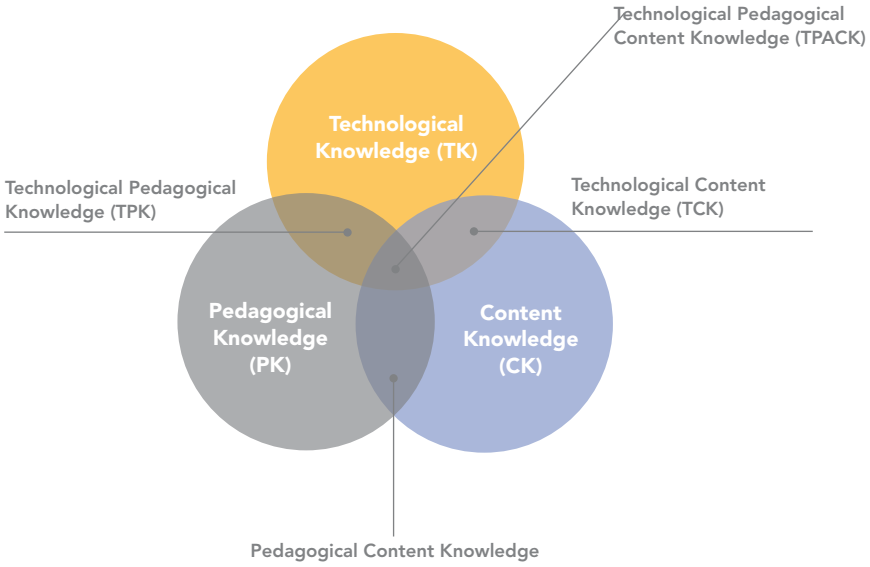


Figure1. The TPACK framework and its knowledge components (Koehler, Mishra, & Cain, 2013).

HOW *HMH PROFESSIONAL SERVICES* DELIVERS

HMH Professional Services has a deep expertise of technological, pedagogical, and content knowledge that the team shares with partner districts. Professional Services consultants work with educators to co-develop pedagogy that incorporates the principals of rigorous curriculum design.

For example, Math Solutions works with school districts across the country to help educators improve teacher effectiveness and math instruction in their schools. Based on what research shows to be four essential goals for improving the teaching of mathematics, Math Solutions courses help teachers:

- increase their understanding of the math they teach
- deepen their insights into how children best learn math
- develop effective strategies for teaching children mathematics
- increase insight into individual learners through formative assessment

EVIDENCE BASE: TECHNOLOGY

ACCELERATING LEARNING FOR TEACHERS AND STUDENTS

• Research has shown that teachers want to integrate more technology into their instruction, but the majority of teachers do not feel confident and would like more training (Bill & Melinda Gates Foundation, 2014). Teachers are often overwhelmed by the choice of products available and **even teachers that are comfortable with the technology need help in learning the most effective ways to implement it in the classroom** (Murphy, 2016).

• In the 2016 HMH Educator Confidence Report, 97% of educators reported using digital tools. Educators indicated that they most often learn about technology through informal conversations with other teachers, followed by formal professional learning, and then teacher resources provided with instructional programs. Teachers, especially those with more than 20 years of experience, reported that they need more professional learning around digital tools, preferably through example lesson plans, classroom videos, and online tutorials. Teachers with 10 or fewer years of experience are more likely to use social media to communicate with students and colleagues, whereas teachers with 11 or more years of experience are more likely to use other digital tools such as digital whiteboards and online assessments. 39% of educators reported that they are optimistic about "increased access to the latest technology" (Houghton Mifflin Harcourt, 2016).

• The importance of teacher professional development is apparent in the 2016 National Education Technology Plan (U.S. Department of Education, 2015), which stressed the need to support teachers with professional development, mentors, and collaboration as they integrate technology into their classroom. The Plan seeks to improve teacher's preparation through the expansion of collaborative tech-powered teacher learning platforms. Specifically, the plan recommends the adoption of **"common expectations and credentialing regarding educators' abilities to design and implement technology enabled learning environments."** Ongoing professional development should "support and develop educators' identities as fluent users of technology; creative and collaborative problem solvers; and adaptive, socially aware experts throughout their careers." Effective professional development initiatives described in the Plan included videotaping lessons to allow online collaboration with other teachers in Denver, setting learning goals and monitoring their progress toward achieving micro-credentials in Wisconsin, and online conferences that allow teachers to choose their own topics, share best practices, and collaborate to overcome challenges.

• The 2016 Vision K-20 Professional Learning Survey was completed by 705 educators, including 589 PreK-12 respondents. The survey found that nearly 60% of PreK-12 respondents had enrolled in a professional learning course in the past year. The vast majority **(75%) had enrolled because they had a personal interest in them or wanted to improve their knowledge about the course topic.** Classroom/behavior management [34%], education software/digital product training [34%], and digital device training [33%] are the three most common online PL course topics PreK-12 educators select (Education Technology Industry Network, 2016).

• With the prevalence of technology in and out of schools, teachers must adjust to new roles. The focus is no longer on what needs to be learned, but on how to use the information that is so readily available. Students need to learn how to problem solve, process and analyze information, and work collaboratively. Teachers' professional learning needs to adjust to these new roles and goals and provide teachers with the tools (both pedagogical and technological) that they need to advance student learning (Daggett, 2010).

• The International Society for Technology in Education (ISTE) has developed Standards for Coaching in order to support educators in integrating technology into their classroom. Districts that adopt and work towards these standards can develop a technological plan that results in student achievement. The six standards are:

1. Visionary leadership
2. Teaching, learning, assessments
3. Digital age learning environments
4. Professional development and program evaluation
5. Digital citizenship
6. Content knowledge and professional growth

HOW *HMH PROFESSIONAL SERVICES* DELIVERS

The Technical Services team provides technical environment advice, product support, technical staff training, installation, reporting and data services, and web-based hosting to ensure fully functional school- and district-wide implementations of blended learning programs.

Up-front technical services include reviewing the district's technical capacity and parameter settings, and training for their technical team. A Technical Services Manager acts as a single point of contact for the team. The Technical Services Manager, an experienced technical expert, also has direct access to a team of dedicated technologists, who understand the district's environment and challenges. The Technical Services team works to leverage best practices, prevent incidents, and optimize instructional time and the learning experience. By providing access to data reporting and analytics, HMH enables strategic decisions about the district's technology to ensure success in the long term.

EVIDENCE BASE: MEASUREMENT

PROGRESS MONITORING AND FEEDBACK

• Accountability results from pursuing a small number of goals with relentless focus. Successful systems are able to **secure accountability** and build capacity toward the goals that they have set. A coherent system with effective accountability has conditions that maximize:
1. **Internal accountability,** which occurs when people within the group are accountable to themselves and others in the group, and take on personal and collective responsibility for effective instruction for all students.
2. **External accountability,** which occurs when the system is performing in line with societal expectations and reassures the public through transparency, monitoring, and selective intervention (Fullan & Quinn, 2016).

• States that have been successful in using teacher evaluation policies to further professional growth have focused on **communication, support, and monitoring of evaluation to support teacher growth.** These evaluation systems connect evaluation data (especially classroom observation data) with targeted and personalized professional development (Connally & Tooley, 2016).

• Teacher evaluation models that **combine multiple measures, including classroom observations, student achievement, and student surveys, are more reliable, more likely to be trusted by teachers, and more likely to improve teacher practice.** Classroom observations should be conducted multiple times per year by someone outside of the teacher's school (Toch, 2016). Teachers that receive frequent, high-quality feedback on their instructional practices are more likely to demonstrate improvement in their teaching (TNTP, 2015). Research has demonstrated that observations should occur at least twice a year in order to produce reliable, actionable data (MET Project, 2014).

• Teachers tend to improve the most in supportive school contexts with strong school leadership, opportunities for "productive and sustained" peer collaboration, and, importantly, **fair systems for evaluations and meaningful feedback in place** (Kraft & Papay, 2014).

• One of the six core principles of improvement identified by the Carnegie Foundation for the Advancement of Teaching speaks to measurement: **"We cannot improve at scale what we cannot measure."** Measurement serves several purposes in system improvement, including: learning about the system, setting priorities, testing theories of improvement, personalizing interventions, and providing psychological and social approaches to support the improvement effort (Bryk, Gomez, Grunow, & LeMahieu, 2015).

• The Center for Education Policy Research (CEPR) at Harvard University surveyed teachers in Delaware, Maryland, Massachusetts, New Mexico, and Nevada to ask about professional development, instructional materials, online resources, and the alignment between Common Core State Standards (CCSS) and teacher evaluations. They studied how each of the above was related to students' performance on the new assessments, and found that, **in mathematics, more professional development days, more classroom observations with explicit feedback tied to the Common Core, and the inclusion of Common Core-aligned student outcomes in teacher evaluations were associated with statistically significantly higher student performance** on the *PARCC® and Smarter Balanced assessments in mathematics (Kane et al., 2016).

• Coe and colleagues (2014) have identified three approaches to teacher assessment that have demonstrated reliability and validity:
1. classroom observations by peers, principals or external evaluators
2. "value-added" models (assessing gains in student achievement)
3. student ratings

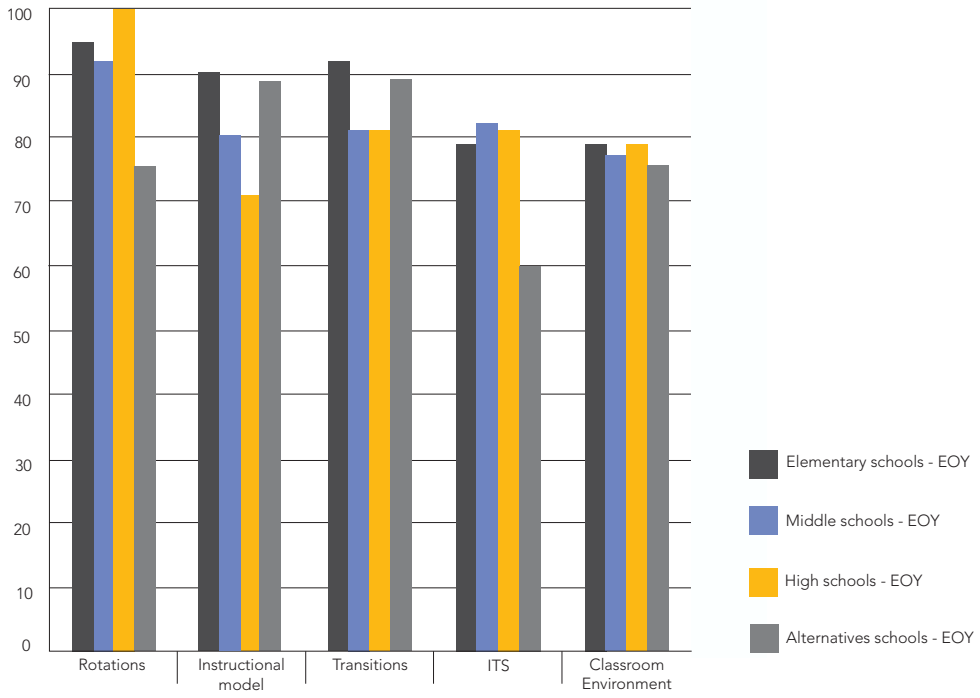
They also identified three other approaches that had limited evidence:
1. principal (or head teacher) judgment
2. teacher self-reports
3. analysis of classroom artifacts and teacher portfolios

HOW *HMH PROFESSIONAL SERVICES* DELIVERS

HMH Professional Services collaborates with school districts to co-develop a measurement and progress monitoring approach that fits into their implementation plan and helps them to achieve their goals. HMH Data Teams® provide a collaborative model for implementing data-driven decision making at the instructional level. It provides a structure for teachers to specifically identify areas of student need and collaboratively decide on the best instructional approach in response to those needs. The Data Teams process helps educators:

- Collaborate to examine student formative assessment data
- Develop short-cycle Data Team assessments
- Monitor data
- Analyze strengths and obstacles
- Establish learning goals
- Select common instructional strategies for groups of students
- Develop result indicators to measure and monitor the learning

One aspect of progress monitoring that can help coaches and teachers to implement with fidelity is the Instructional Practices Inventory (IPI). This is a collaborative tool that coaches and teachers can use for classroom observation and progress monitoring. Teachers and coaches set goals and then track their progress toward those goals in areas such as learning environment, whole-and small-group instruction, and student engagement. An example of the progress monitoring that can result from the IPI can be seen below:



SUMMARY

HMH Professional Services has years of experience collaborating with school districts to help set goals and effectively plan, encourage collaboration, co-construct coaching situations, personalize professional learning, co-develop teachers' pedagogy, accelerate technology adoption, and monitor progress towards system goals.

In this paper, we have demonstrated how *HMH Professional Services* aligns with research-based practices including the Carnegie Foundation Six Core Principles for Improvement: make the work problem-specific and user-centered; variation in performance is the core problem to address; see the system that produces the current outcomes; we cannot improve at scale what we cannot measure; anchor practice improvement in disciplined inquiry; and accelerate improvements through networked communities (Bryk, Gomez, Grunow, & LeMahieu, 2015).

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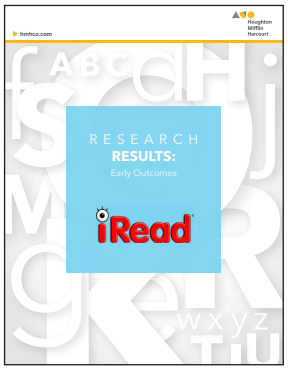
NOTES

HMH Research Publications

Research Into Practice Into Results

Research Foundations

Research Foundations papers, which include the Evidence and Efficacy papers, provide an in-depth account of the theoretical underpinnings, evidence base, and expert opinions that guide the design and development of new and revised programs. Research Foundations map known research and design principles to practical applications of the program.



Research Results including Efficacy Compendiums

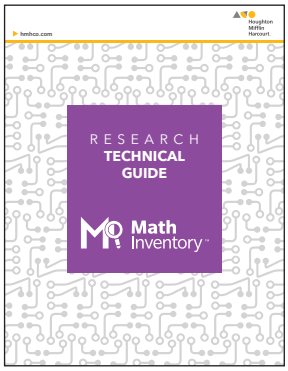
Research Results papers document the efficacy of a program in terms of Gold level studies (strong evidence), Silver level studies (moderate evidence) and Bronze level studies (promising evidence). At HMH®, program efficacy is monitored closely and continuously in a variety of settings, including varying geographical locations, implementation models, and student populations.

Research Case Studies

Research Case Study papers showcase research that is primarily qualitative and/or anecdotal. Research Case Study papers may profile a particular educator, student, implementation, or special population of students. Research Case Study papers strive to provide more context for understanding programs in practice.

Research Professional Papers

Research Professional Papers are typically authored by an expert in the field and highlight an important theoretical construct, practical application, program component, or other topic related to learning in the context of HMH programs.



Research on Assessments

Research Assessments such as the Technical Guide accompany the release of a stand-alone assessment to demonstrate its reliability and validity. Technical Guides and supporting papers are periodically updated as additional reliability, and validity evidence is collected in support of an assessment's use and functionality.

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