

PLC AT WORK® IN ARKANSAS

Driving achievement results through school transformation and innovation

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EXECUTIVE SUMMARY

Successfully Implementing *PLC at Work*[®] in Arkansas

In 2017, the Arkansas Division of Elementary and Secondary Education partnered with Solution Tree to expand the use of *Professional Learning Communities at Work*[®] (*PLC at Work*[®]), a school transformation process that engages educators in collaborative cycles of inquiry. *PLC at Work* in Arkansas represents a significant investment for the state and is an important part of its plan to improve education results. This investment is already showing positive results for the first cohort of participating schools. Students in the first cohort of *PLC at Work* in Arkansas schools were, on average, similar to other public school students in Arkansas, based on demographics and academic achievement prior to participating in the program. Given this similarity, schools that implement the *PLC at Work* process with fidelity could reasonably expect to see similar results.

KEY FINDINGS

- ▶ **Students in *PLC at Work* Cohort 1 schools showed improved academic achievement and higher levels of engagement**
 - Participation in *PLC at Work* in Arkansas has had a positive impact on achievement growth in Arkansas, particularly in math.
 - Cohort 1 schools have seen positive changes in student engagement, including fewer suspensions and expulsions.
- ▶ **All *PLC at Work* Cohort 1 schools reported positive changes in instructional practices, which led to improved learning opportunities for students**
- ▶ **Educators in *PLC at Work* Cohort 1 schools improved their culture of collaboration and collective responsibility for ensuring all students learn at high levels**
 - All educators saw growth in communication, trust, collective responsibility, and efficacy for student learning.
 - Implementation of key elements of *PLC at Work* was associated with larger growth in educator trust, collective responsibility, and the creation of schoolwide systems of interventions and extensions.
- ▶ **All *PLC at Work* Cohort 1 schools received substantial support from school leaders and Solution Tree associates and were able to fully implement the program**
 - All schools established the core components of *PLC at Work*.
 - Customized supports from Solution Tree associates helped schools meet their implementation goals.
 - Widespread support was necessary for implementing and sustaining *PLC at Work*.

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INTRODUCTION

Arkansas educators work in increasingly diverse schools and communities. It is critical that they have frequent, high-quality learning opportunities so they can adapt practices to meet students' unique needs. To that end, Solution Tree delivered up to 150 days of in-depth, customized learning opportunities over three years to help each school in the first cohort implement *PLC at Work*—a groundbreaking process that drives achievement results through school transformation and innovation.

With Solution Tree's support, Arkansas educators received tailored resources and training to harness the power of effective schoolwide teacher collaboration. This collaboration was focused on enhancing teaching and learning in four main areas:

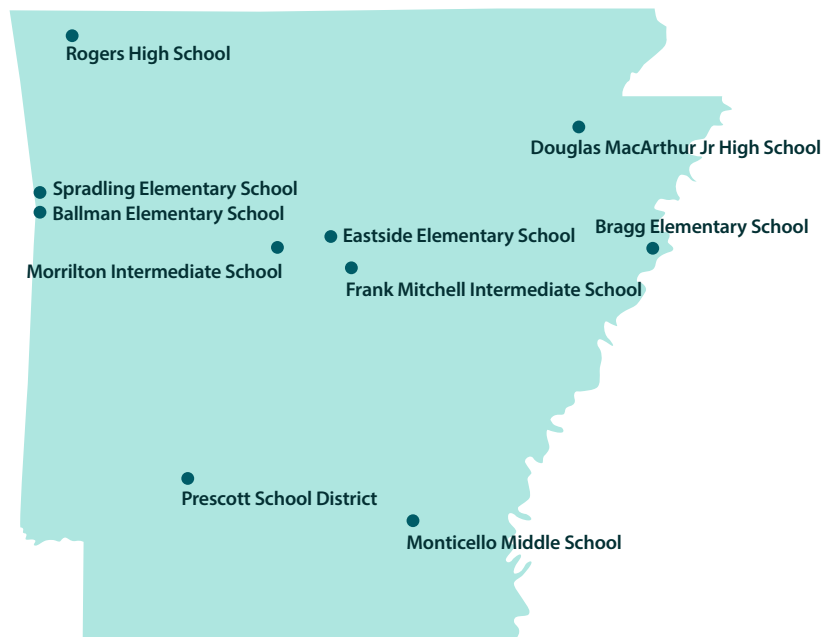
- ▶ Using evidence of student learning and data to improve instruction
- ▶ Building communication and trust among colleagues
- ▶ Promoting a sense of collective responsibility and efficacy to improve student learning
- ▶ Establishing the belief that all students can learn at high levels¹

As a result, students in *PLC at Work* schools made meaningful growth on achievement tests during the 2017–18 and 2019–20 school years. Significant gains in math relative to a comparison group of students in other Arkansas schools can be credited to *PLC at Work*.

Other Arkansas schools may experience similar results from *PLC at Work* when the process is implemented well. On average, the demographic characteristics and baseline achievement of students attending *PLC at Work* schools are not significantly different from those of students attending other schools in Arkansas.

PLC at Work is an “ongoing process in which educators work collaboratively in recurring cycles of inquiry and action research to achieve better results for the students they serve” (Dufour et al., 2016).

**Cohort included
10 schools and
one school district**



¹ See appendix for a detailed description and logic model of *PLC at Work* in Arkansas.

KEY FINDINGS

- 1** Students in *PLC at Work* Cohort 1 schools showed improved academic achievement and higher levels of engagement
- 2** All *PLC at Work* Cohort 1 schools reported positive changes in instructional practices, which led to improved learning opportunities for students
- 3** Educators in *PLC at Work* Cohort 1 schools improved their culture of collaboration and collective responsibility for ensuring all students learn at high levels
- 4** All *PLC at Work* Cohort 1 schools received substantial support from school leaders and Solution Tree associates and were able to fully implement the program

ABOUT THIS REPORT

This report presents findings from an evaluation conducted on behalf of Solution Tree and the Arkansas Division of Elementary and Secondary Education. It provides a summary of how Cohort 1 schools implemented *PLC at Work* and describes the progress they have made on achieving positive teacher and student outcomes in their third and final year in the project. Cohort 1 included 10 schools and one school district. The report aims to guide successful scale-up of *PLC at Work* in schools currently implementing the process, as well as schools that are considering implementing it in the future.

The findings presented in this report are based on the analysis of multiple data sources.

PLC at Work in Arkansas evaluation data sources

Source	Description
Surveys	At the end of 2019–20, the evaluation team sent a survey to teachers, administrators, and other school staff members to gather feedback on Cohort 1 schools' third year of <i>PLC at Work</i> implementation. In total, 410 individuals completed the survey, for an average response rate of 83 percent.
Interviews and focus groups	During spring 2020 site visits, the evaluation team conducted 12 interviews with school administrators, as well as 20 focus groups with guiding coalition members and other school staff members. The team also conducted interviews with 10 Solution Tree associates via phone or Zoom.
Implementation documents and other literature	The evaluation team reviewed Solution Tree services documentation, needs assessments for each Cohort 1 school, and Solution Tree training materials and literature.
School and student data	The evaluation team used school and student data from the Arkansas Division of Elementary and Secondary Education. The team measured growth on the ACT Aspire math and English language arts assessments between the year before implementation (2016–17) and the end of the second year of implementation (2018–19).

Note: The evaluation and methodology behind these analyses can be found in: Torres, K., Rooney, K., Holmgren, M., Yoon, S. Y., Taylor, S., & Hanson, H. (2020). *Technical appendix for: PLC at Work® in Arkansas: Driving achievement results through school transformation and innovation*. Education Northwest. <https://educationnorthwest.org/news/independent-evaluation-validates-success-arkansas-plc-work-project>

KEY FINDING 1

Students in *PLC at Work* schools showed improved academic achievement and higher levels of engagement

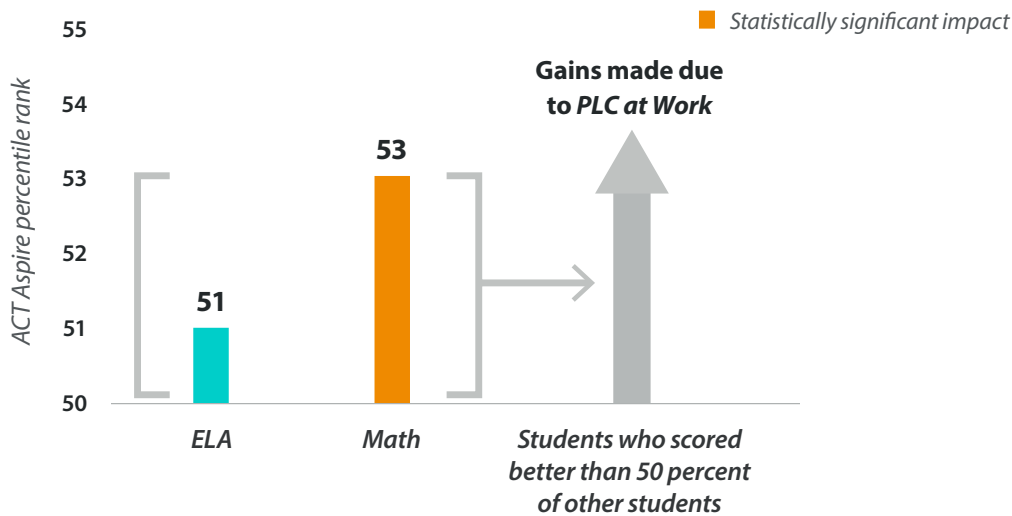
PLC at Work in Arkansas had an overall positive impact on growth on ACT Aspire math test scores

After two years, *PLC at Work* in Arkansas had a positive impact on student achievement growth, particularly in math, compared to similar students in schools not participating in the project (Hanson, Yoon, Fantz, & Merrill, 2020). The evaluation team measured growth on the ACT Aspire math and English language arts tests from 2016-17 (the year prior to implementation) through 2018-19 (the end of Year 2 for Cohort 1 schools). This impact translates to moving a student who would have scored at the 50th percentile (better than half of students who took the test) to the 53rd percentile in math (figure 1).

PLC at Work in Arkansas had a positive impact on math achievement after just two years.

The team also found that *PLC at Work* had a positive impact on math achievement for specific student groups, including students who were ever eligible for free or reduced-price lunch.

Figure 1. PLC at Work had a positive impact on ACT Aspire math test scores



Source: Analysis of Arkansas Division of Elementary and Secondary Education data, 2016-17 to 2018-19.

Most schools reported gains in student achievement. Staff members at eight of the 10 participating schools in Cohort 1 reported student academic growth that they attributed to *PLC at Work*. For example, educators at two schools described improvements on standardized tests, such as the ACT Aspire, as well as on interim assessments. One administrator reported seeing achievement growth compared with baseline test scores and “unprecedented” growth in math. Some school staff members mentioned other academic indicators, such as fewer students needing to attend summer school.

Cohort 1 schools have seen positive changes in student engagement

When schools make progress on implementing *PLC at Work*, they increase student engagement in goal setting and progress monitoring and continuously improve overall student achievement in the long term. Throughout this process, teachers work together to identify what students need to know and to administer ongoing assessments that clarify where students need extra support or extensions for learning. These structures provide a basis for both educators' and students' understanding of their progress and –over time– lead to improved student engagement.

Educators reported that *PLC at Work* fostered several positive changes in student engagement, including:

- ▶ **Increased understanding of what assessment scores indicate.** Staff members at six schools said their students have a deeper understanding of how assessment scores demonstrate their progress toward mastery and highlight areas for improvement.
- ▶ **Increased desire to improve proficiency.** Staff members at three schools said students now ask to participate in interventions or to redo work when they do not achieve proficiency the first time.
- ▶ **Improvements in behavioral indicators, such as increased attendance and fewer behavioral referrals.** Students had lower increases in suspensions and expulsions relative to similar peers in schools not implementing *PLC at Work*.
- ▶ **Fewer special education referrals.** Staff members at one school attributed the decrease in special education referrals to their increased understanding of student needs.

Educators used multiple methods to facilitate student ownership of learning. For example, four schools provided tools, such as data notebooks, that students used to monitor their own proficiency. Two schools held student-led conferences at which students were expected to articulate their own mastery of standards and goals to their families.

Educators in nine schools indicated that student ownership of learning was improved and educators in eight schools saw progress in student belonging.

KEY FINDING 2

All PLC at Work Cohort 1 schools reported positive changes in instructional practices, which led to improved learning opportunities for students

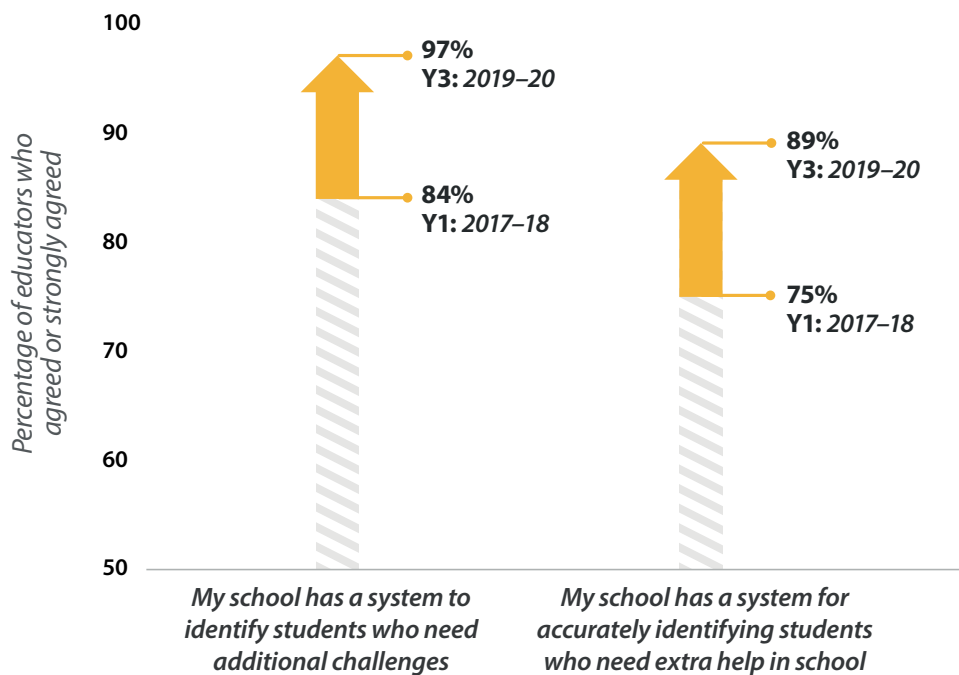
PLC at Work assumes a focus on learning for both students and educators. Throughout PLC at Work implementation, teachers worked together to identify and prioritize essential standards, establish common formative assessments, and examine student work and data to decide how to improve learning opportunities for all students. This involved establishing consistent instruction across classrooms and providing differentiated supports for students needing extra help or additional challenges (figure 2).

During site visits and interviews, educators reported progress in improving instruction for all students, particularly through teacher collaboration in the following areas:

- ▶ Focusing on essential standards, proficiency, assessment, and instruction
- ▶ Aligning standards across grade levels
- ▶ Implementing flexible grouping of students to provide more support and feedback
- ▶ Creating a schoolwide system of interventions

All 10 schools reported making overall improvements in instructional practices as a result of PLC at Work.

Figure 2. Participating in PLC at Work improved learning opportunities for all students



Survey respondents indicated large increases in their understanding, perceptions, and use of interventions and extensions at their school.

Source: Education Northwest survey of PLC at Work in Arkansas Cohort 1 teachers, administrators, and other school staff members, administered in spring 2019-20 (N = 410).

All Cohort 1 schools created schoolwide systems of interventions and extensions.

Educators described new strategies, such as having staff members “push in” to classrooms for interventions, creating 10-day cycle lesson plans for assessment, and finding creative ways to provide extensions to learning. Staff members at most schools said implementing interventions improved in Year 3.

“This year, I think our big change was the tracking of data and the 10-day cycles ... [Teachers] now write lesson plans on 10-day cycles and break them down by learning targets and Tier 2 interventions. [W]e also started monthly data meetings. Once a month, we sit at the table and look at mastery, holes [in learning], and support that [staff members] might need as a group.”

School administrator

KEY FINDING 3

Educators in *PLC at Work* Cohort 1 schools improved their culture of collaboration and collective responsibility for ensuring all students learn at high levels

A fundamental structure of a professional learning community involves collaborative teams of educators who work “interdependently to achieve common goals for which members are mutually accountable” (Dufour et al., 2016). Within *PLC at Work*, educators form collaborative teams that are supported by a guiding coalition made up of school administrators, collaborative team teacher representatives, and other staff members (such as instructional coaches and facilitators, counselors, librarians, and paraprofessionals). Together their work drives improvements in collaboration and collective responsibility for student learning.

At all 10 schools, educators reported increased communication and collaboration related to teaching strategies and student outcomes.

Most schools saw positive change in staff collaboration and school culture

10 of 10 schools
Improved staff communication

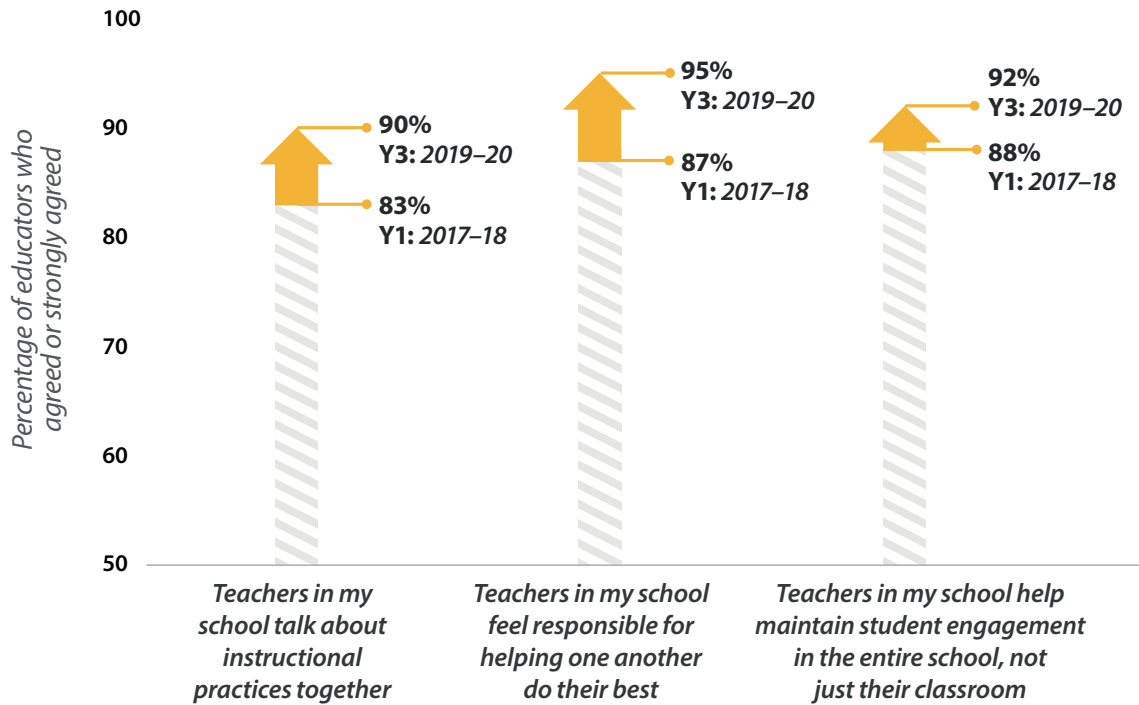
10 of 10 schools
Improved collective responsibility for student learning

8 of 10 schools
Improved trust in colleagues

10 of 10 schools
Positive changes in school culture

All educators saw growth in communication, trust, collective responsibility, and efficacy for student learning. When implemented with fidelity, *PLC at Work* is intended to increase teacher collaboration and collective responsibility for student learning, establish a schoolwide focus on learning at high levels, and create a results orientation using evidence of student learning (DuFour et al., 2016). Progress on these interim educator outcomes then contributes to long-term goals related to student achievement and engagement (figure 3).

Figure 3. Participating in PLC at Work improved school culture



Source: Education Northwest survey of PLC at Work in Arkansas Cohort 1 teachers, administrators, and other school staff members, administered in spring 2019-20 (N = 410).

On the survey, as well as during interviews and focus groups, school staff members described their progress in the following areas:

- ▶ **Effective communication within teams.** Overall, 94 percent of guiding coalition survey respondents and 95 percent of collaborative team survey respondents agreed that their group members communicate well.
- ▶ **Teacher trust.** In Year 3, all indicators suggested that teacher trust was very high and that teachers increasingly reached out to their colleagues about instructional practices. Educators cited collaboration and school leadership as important factors in creating trust in schools.
- ▶ **Collective efficacy and responsibility.** On average, survey respondents agreed that teachers at their school had collective efficacy across multiple dimensions. For example, 97 percent believed that most of their colleagues felt collectively responsible for ensuring all students learn.
- ▶ **Belief that all students can learn at high levels.** Overall, 95 percent of survey respondents agreed or strongly agreed that staff members at their school believe all students can learn.

Implementation of key elements of *PLC at Work* was associated with growth in educator trust, collective responsibility, and the creation of schoolwide systems of interventions and extensions

Key implementation elements of *PLC at Work* include protected time for collaboration, understanding and support for schoolwide goals, distributed leadership, and collaborative use of student data to improve instruction and learning. Schools that reported the most growth in implementation of these key elements were also likely to report greater improvements in trust among educators, collective responsibility and efficacy for student learning, and the creation of schoolwide systems of interventions and extensions for student learning.

For school staff members, relationships between *PLC at Work* implementation activities and these outcomes included the following:

- ▶ **Meeting weekly** was an important indicator of progress in Years 1 and 2.
- ▶ **Regular use of collaborative cycle of inquiry practices** (perceived changes to data and inquiry practices using evidence of student learning to make actionable decisions) was significantly associated with progress on interim outcomes for teachers.
- ▶ **Clarity and support of schoolwide goals** (perceived changes in staff members' understanding and support of schoolwide goals) was significantly associated with progress on interim outcomes for teachers.
- ▶ **Distributed leadership** (the extent to which guiding coalition members report adequate time and opportunities for teacher leadership) was an important factor in progress toward interim outcomes.

KEY FINDING 4

All *PLC at Work* Cohort 1 schools received substantial support from school leaders and Solution Tree associates and were able to fully implement the program

All schools established the core components of *PLC at Work*

To create a schoolwide foundation for *PLC at Work*, each project school must first establish collaborative teacher teams and a guiding coalition to support implementation and provide adequate time for collaboration (see logic model in the appendix). Collaborative teams were most often grouped with educators who taught the same grade and the same subject or were grouped vertically (i.e., educators who taught the same subject but across different grades). By Year 3, 91 percent of collaborative teams met weekly and 93 percent said their guiding coalition met at least monthly.

All schools completed startup activities in Year 3

10 of 10 schools
Set schoolwide goals

10 of 10 schools
Established a mission, vision, and collective commitments*

10 of 10 schools
Created collaborative teams** and a guiding coalition

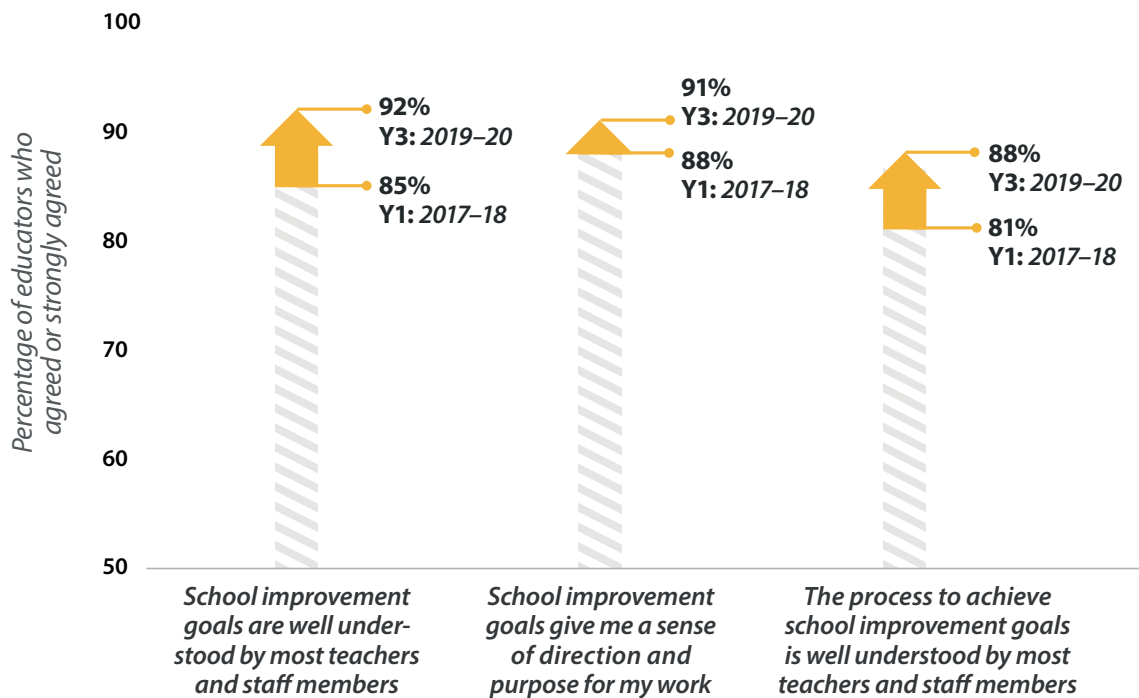
10 of 10 schools
Provided adequate time to collaborate

* Five schools continued to refine their mission, vision, and collective commitments to make them stronger, more “aspirational,” and tangible for staff members in their daily work.

** Four schools revised their collaborative team composition due to challenges with team size, such as only having one content teacher per grade level.

All Cohort 1 schools created a schoolwide mission and vision, collective commitments, and goals. During the first year of *PLC at Work* implementation—with support from their Solution Tree associates—school leaders set the stage for the “big ideas” behind the work and developed the foundational elements that anchor *PLC at Work* implementation (Bailey & Jakicic, 2019). Overall, guiding coalition members reported positive changes in the extent to which they collected collaborative team members’ input to inform the creation of schoolwide goals. Due to greater involvement with this process, educators were more likely to agree that their understanding and support of schoolwide goals increased from Year 1 to Year 3 (figure 4).

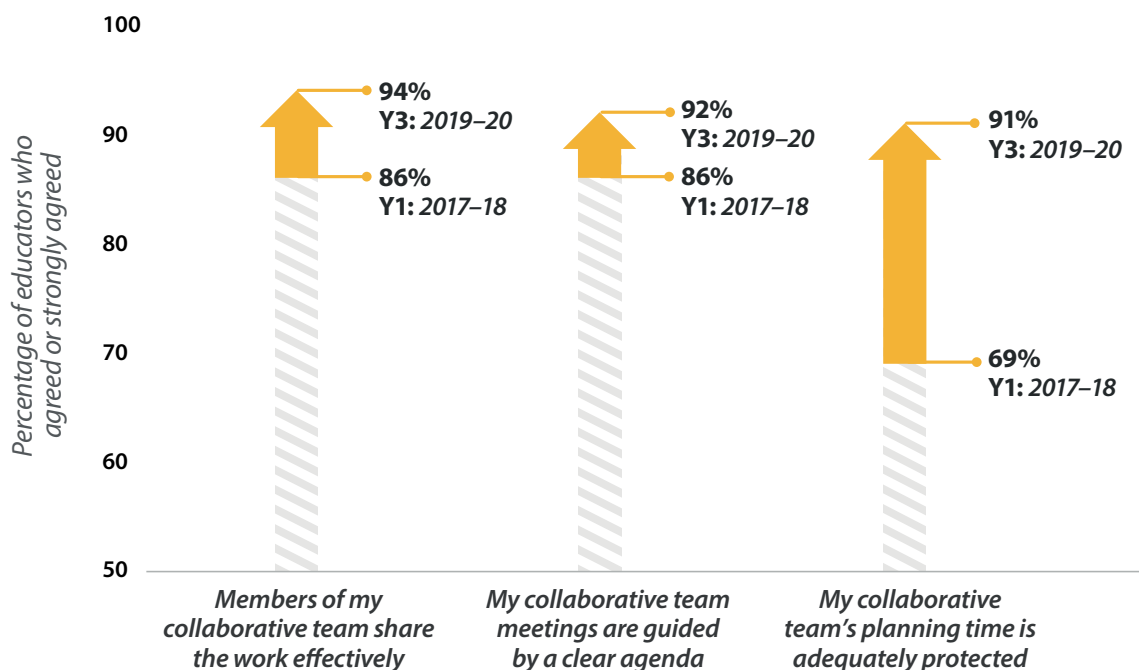
Figure 4. Participating in PLC at Work increased understanding of and support for school improvement goals



Source: Education Northwest survey of PLC at Work in Arkansas Cohort 1 teachers, administrators, and other school staff members, administered in spring 2019-20 (N = 410).

All schools created a schoolwide collaborative culture. In the *PLC at Work* process, a key ongoing activity is building a collaborative culture. This is accomplished by establishing a consistent process for collaborative teamwork and providing protected time to collaborate with colleagues (DuFour et al., 2016; Mattos et al., 2016). By the end of Year 3, all schools reported improvements in their ability to collaborate effectively (figure 5).

Figure 5. Participating in PLC at Work helped educators establish a culture of collaboration and provided protected time for collaboration



Source: Education Northwest survey of PLC at Work in Arkansas Cohort 1 teachers, administrators, and other school staff members, administered in spring 2019-20 (N = 410).

In interviews and focus groups, staff members, administrators, and Solution Tree associates at six schools described collaborative team practices as “tighter,” with clearer work expectations and alignment with the rest of the school’s collaborative teams. Staff members at four schools said they revised their agenda process in Year 3, with staff members at two of these schools reporting that school leaders were working directly with the staff to make improvements. Staff members at all schools reported regularly documenting their work, primarily through shared online drives. Guiding coalition members also effectively implemented *PLC at Work* meeting practices.

Guiding coalition members supported implementation. Guiding coalitions supported the ongoing implementation of *PLC at Work* and served as models of the *PLC at Work* process for collaborative teams at their school in the following ways:

- ▶ **Monitoring and supporting collaborative teams** as they aligned their practice to standards and used evidence of student learning to collaboratively improve instruction, as well as drive continuous improvement.
- ▶ **Representing collaborative team colleagues** during meetings and serving as “liaisons” between staff members and administrators.
- ▶ **Helping all staff members “get on the same page”** with implementation and expectations for participation.
- ▶ **Informing schoolwide decisions** on implementation, as well as larger academic decisions.

Eighty-seven percent of Cohort 1 survey respondents agreed their views and opinions of their collaborative team were well represented on the guiding coalition.

All schools completed ongoing activities related to establishing a guaranteed and viable curriculum

10 of 10 schools
Identified essential standards*

10 of 10 schools
Created common formative assessments*

10 of 10 schools
Used data to monitor student progress and inform instruction

10 of 10 schools
Used data to identify students for extensions and interventions

* All schools revised or refined their essential standards and common formative assessments.

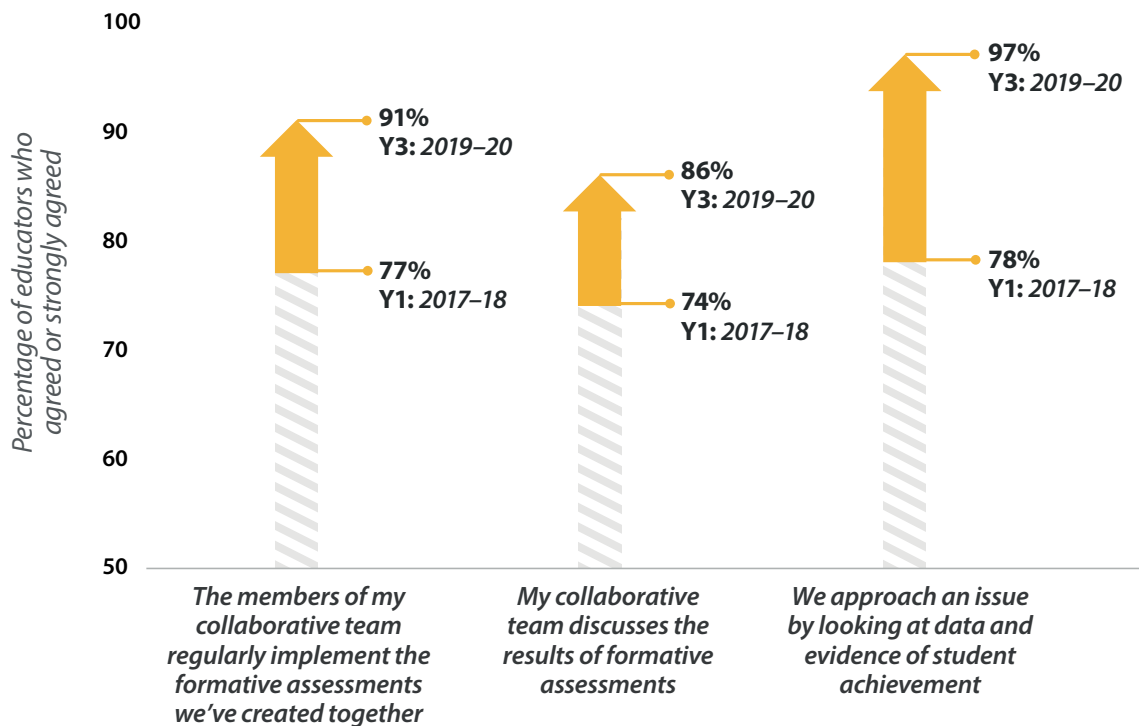
All collaborative teams regularly implemented best practices to establish a guaranteed and viable curriculum² and continuous improvement. Once a collaborative culture is in place, collaborative teams can identify a clear set of essential standards; design and implement formative assessments based on those standards; administer the assessments; and discuss evidence of student learning to inform instruction, interventions, and extensions. Most survey respondents indicated they made significant progress in identifying a clear set of essential standards (89 to 93 percent) and designing formative assessments (82 to 92 percent) from Year 1 to Year 3.

² According to Marzano (2003), a guaranteed and viable curriculum gives students access to the same essential learning outcomes, regardless of their teacher, and can be taught in the allotted time (as cited by Mattos et al., 2016).

Collaborative teams met weekly to identify essential standards, design and use common formative assessments, and conduct collaborative cycle of inquiry activities to improve instruction and learning. Compared to their practice prior to *PLC at Work* implementation, participants engaged in cycle of inquiry activities focused on the four essential questions of a PLC³ much more frequently. These activities resulted in improved use of data overall (figure 6). They made the largest gains in:

- ▶ **Revisiting predictions** made in previous meetings
- ▶ **Identifying additional data** to offer a clearer picture of the issue
- ▶ Exploring data by **looking for patterns and trends**
- ▶ Using data to **make links between instruction and student outcomes**

Figure 6. Participating in PLC at Work improved educators' use of data



Source: Education Northwest survey of PLC at Work in Arkansas Cohort 1 teachers, administrators, and other school staff members, administered in spring 2019-20 (N = 410).

³ According to DuFour and colleagues (2016), the four essential questions of a PLC are:

1. What do we want students to know and be able to do?
2. How will we know if they have learned it?
3. What will we do when students have not learned it?
4. What will we do to extend learning when students have already learned it?

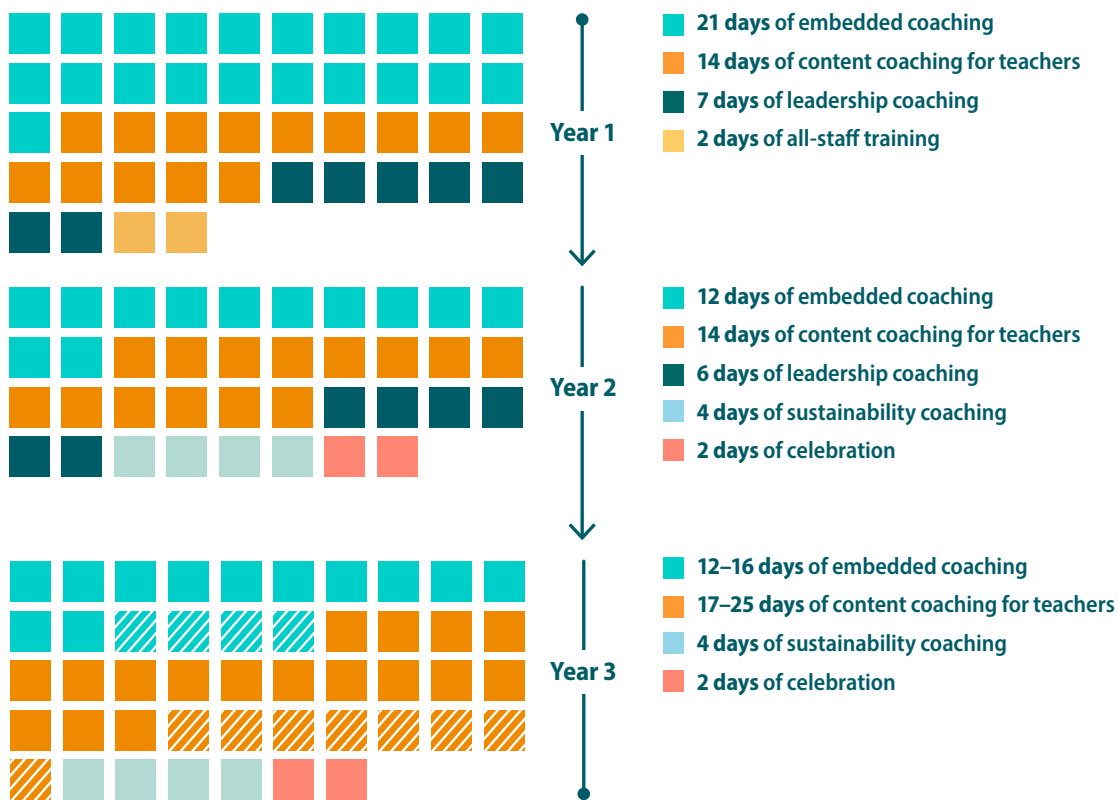
Customized supports from Solution Tree associates helped schools meet their implementation goals

Before and during the school year, school leadership teams and guiding coalitions received ongoing training and support on *PLC at Work* while they implemented startup and ongoing activities. In total, 29 Solution Tree associates were placed in Cohort 1 schools statewide.

Each school received 35 to 44 days of coaching from Solution Tree associates in 2019–20. Most schools worked with a team of five Solution Tree associates who specialized in coaching educators and leaders on implementing and sustaining *PLC at Work*, effective school leadership, assessment, math, or literacy.

Over 85 percent of Cohort 1 survey respondents agreed that they received useful support from Solution Tree.

On average, each project school received the following Solution Tree services in:



Solution Tree associates collaborated with the principal and guiding coalition in each school to lay the foundation for high-performing, schoolwide professional learning teams. In the third and final year of the project, school leaders and staff members worked alongside their Solution Tree associates to identify and strengthen practices that facilitate and sustain *PLC at Work*.

All administrators, guiding coalition members, and school staff members had many opportunities to participate in coaching and relevant workshops. Of the multiple services provided, most survey respondents reported that they participated in *PLC at Work* overview sessions; coaching during collaborative team meetings; and workshops focused on assessment,

literacy, and math. Additionally, school administrators participated in frequent embedded coaching with their school's lead Solution Tree associate and were in regular communication with them. According to on-site interviews and focus groups, all 10 schools sent at least one staff member to a *PLC at Work* conference.

Supports from Solution Tree associates drove successful *PLC at Work* implementation.

On the survey, 86 percent of collaborative team members and 93 percent of guiding coalition members agreed or strongly agreed that their group received useful support from Solution Tree associates.

During site visits, educators reported that associates helped increase schoolwide understanding of the *PLC at Work* process. They also said Solution Tree associates used three main strategies to optimize support:

- ▶ **Creating consistent and open lines of communication with schools.** Solution Tree associates used various methods, such as email, phone, and online documents, to share information with each school. At four schools, educators said it was easy to communicate with associates; educators at an additional three schools said associates were always available when questions arose.
- ▶ **Differentiating supports to fit each school's unique needs.** School administrators and school staff members in half of the schools said their Solution Tree associates were well matched to their school and met them where they were at as a school. In addition, staff members at five schools said they appreciated associates' ability to customize supports based on their school's unique context and needs.
- ▶ **Providing hands-on training.** Educators at four schools said they were grateful for their associates' ability to provide hands-on training (such as modeling instructional strategies, conducting teacher observations, and providing feedback) and empowering teachers to learn by doing rather than simply giving them the answer.

At all 10 schools, Solution Tree associates provided open communication, differentiated supports, and hands-on training.

Additional useful supports included *PLC at Work* workshops and Global PD, the online *PLC at Work* professional development resource library. Educators at eight schools said the workshops were useful for improving instruction, and educators at six schools said they helped generate buy-in for *PLC at Work*.

In addition, educators at four schools said Global PD was a useful complementary resource when they were struggling to understand elements of *PLC at Work* or trying to implement something new (such as tiered interventions).

"If we wouldn't have had those coaches there, I know we wouldn't have been nearly as successful."

Guiding coalition member

Widespread support was necessary for implementing and sustaining *PLC at Work*

The *PLC at Work* process emphasizes that “leading a school or district does not mean leading alone” and that a challenge for school leaders is to find ways to create a “focused, organized, and consistent school in which leaders and teachers collaborate, make evidence-based decisions, understand that the student is the top priority, communicate effectively, and are involved in trusting relationships” (Spiller & Power, 2019, p.1). As such, schools will continue to grow and sustain *PLC at Work* through the ongoing work of collaborative teams, guiding coalitions, and school and district administrators.

To see long-term improvements, educators must “move from an interest in the PLC process to a commitment to the process” (DuFour et al., 2016, p. 3). *PLC at Work* Cohort 1 schools appear to have made this transition.

Educators at all schools reported growth in their understanding of *PLC at Work*, as well as increased buy-in and capacity to engage in the work. During site visits and interviews, educators cited several aspects that contributed to this growth:

- ▶ **Regularly engaging with the *PLC at Work* process in their collaborative teams.** Staff members at eight schools said their understanding of *PLC at Work* increased as a result of developing and analyzing assessments, using the data for decision-making, and answering the “four essential questions of a PLC” (DuFour et al., 2016).
- ▶ **Using productive meeting practices.** Staff members at six schools attributed their increased understanding to the collaborative team meeting processes, including staying on task and holding one another accountable.
- ▶ **Increasing teacher ownership of the process.** Staff members at five schools attributed the increased buy-in to teachers’ owning the process and observing positive impacts of *PLC at Work* on student achievement. At three schools, staff members said distributed leadership also played a role.
- ▶ **Hiring with *PLC at Work* in mind.** Staff members at two schools said two factors helped buy-in: a hiring process involving an introduction to *PLC at Work* and relevant interview questions.

Ninety-two percent of all school staff members surveyed agreed that teachers played an important role in school improvement.

Creating opportunities for teacher leadership was essential for sustaining *PLC at Work*.

Administrators and staff members at all schools emphasized the importance of having school leaders provide guidance for *PLC at Work* at multiple levels, from serving as a representative or liaison for their collaborative team to making schoolwide decisions. Educators at seven schools reported improvements in their ability to share leadership responsibility with their guiding coalitions and/or within their collaborative team. For example, staff members at two schools said their method of rotating educators on and off the guiding coalition helped build their leadership ability, as well as ownership of the *PLC at Work* process. Lastly, educators at seven

schools said it was critical to have a strong guiding coalition to sustain the work, particularly if the principal were to leave.

District support for *PLC at Work* was critical to the successful implementation and sustainability of the program. Staff members at nine schools said district administrators were “all in” or “on board” with *PLC at Work* by the end of Year 3—as demonstrated by their understanding of the process, support for creating time for collaboration and systematic interventions and extensions, and expansion of *PLC at Work* districtwide. District support and flexibility for implementing the model was found to be critical to a school’s ability to overcome similar yet distinct implementation challenges based on their context. For example, several schools found it challenging to provide substitute teachers during training and professional development sessions and to schedule protected time to collaborate. In four schools, educators appreciated the opportunity to serve as a “model” for their district’s *PLC at Work* implementation, as well as the support they received to do so.

Staff members at nine of 10 schools said district administrators were “all in” or “on board” with PLC at Work.

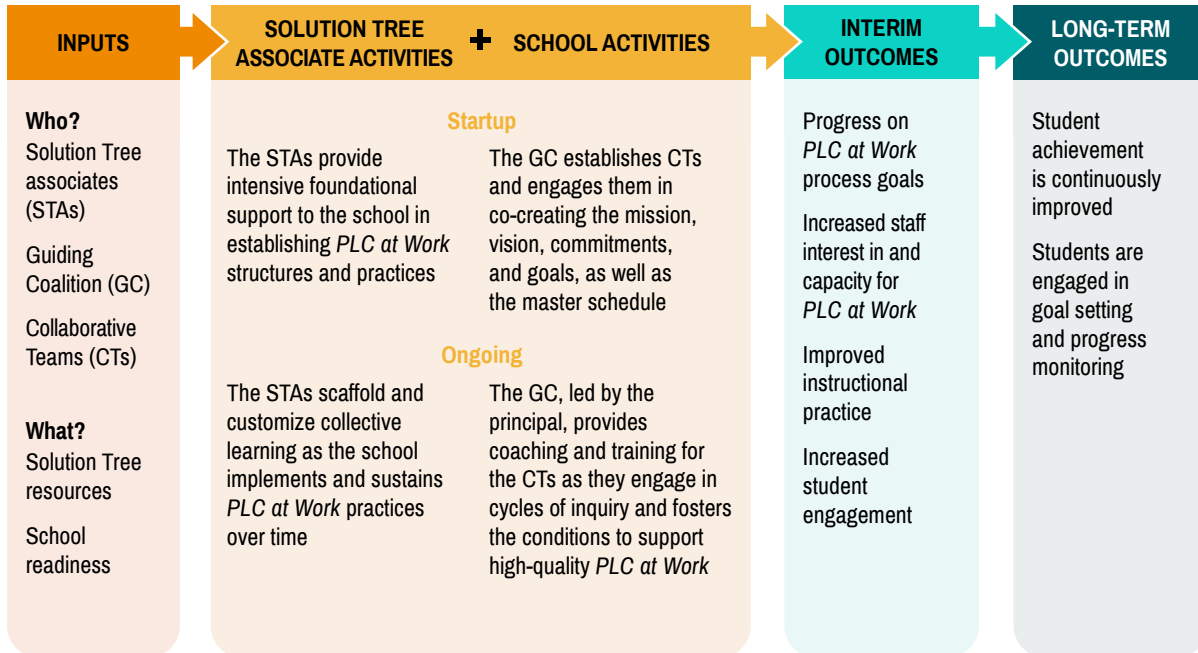
“They’re watching us and listening, and it’s spreading throughout the district—but also the community. There’s almost not a day that goes by now that I don’t hear ... from someone outside of our school saying, ‘Oh, I just hear the great things going on,’ and parents calling, wanting to get their kids here.”

Guiding coalition member

Appendix: *PLC at Work* logic model

Evaluation activities for *PLC at Work* in Arkansas closely follow a logic model of the project’s resources, activities, and interim outcomes (figure A1). Logic models explain how various inputs and activities connect to interim outcomes that may ultimately lead to a long-term impact (W.K. Kellogg Foundation, 2004).

Figure A1. *PLC at Work* in Arkansas logic model (summary)



The *PLC at Work* in Arkansas logic model was developed by Education Northwest in partnership with Solution Tree. It shows how *PLC at Work* accomplishes what it sets out to do. When schools make progress on *PLC at Work* processes, they increase their interest in and capacity to do the work, improve their instructional practice, and begin to increase student engagement—which, in turn, helps drive continuous student achievement and engagement in goal setting and progress monitoring.

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About Education Northwest

Founded as a nonprofit organization in 1966, Education Northwest partners with schools, districts, communities, and other stakeholders to help all students meet their full potential. Education Northwest's mission is to use evidence to help partners solve educational challenges and improve learning by providing high-quality research, technical assistance, professional development, and evaluation services that address the most pressing education and youth-services needs facing students today.

About the *PLC at Work*® in Arkansas evaluation

In partnership with Solution Tree, the Arkansas Division of Elementary and Secondary Education has worked to develop and expand the *PLC at Work* process in Arkansas since 2017. This evaluation report focuses on the impact and implementation of the process in the first of four participating cohorts of schools and districts. The 10 schools and one district in Cohort 1 began implementation of *PLC at Work* in 2017–18.

TECHNICAL APPENDIX

PLC at Work[®] in Arkansas: Driving achievement results through school transformation and innovation

January 2021

Kathryn Torres, Kathryn Rooney, Morgan Holmgren, Sun Young Yoon, Sara Taylor, and Havala Hanson



CREATING STRONG
SCHOOLS & COMMUNITIES

About Education Northwest

Founded as a nonprofit corporation in 1966, Education Northwest builds capacity in schools, families, and communities through applied research and development.

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Introduction

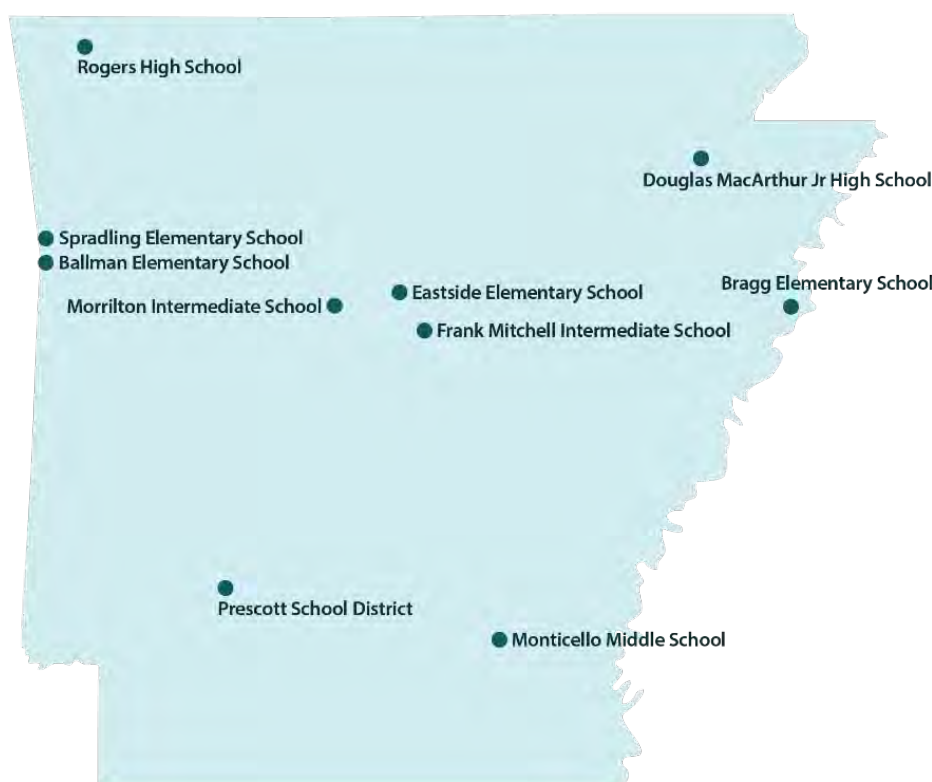
Professional Learning Communities at Work[®] (*PLC at Work*[®]) in Arkansas is a partnership between Solution Tree Inc. and the Arkansas Division of Elementary and Secondary Education (DESE) to develop and expand *PLC at Work* at selected schools. When implemented with fidelity, *PLC at Work* is intended to establish a schoolwide focus on learning at high levels, increase teacher collaboration and collective responsibility for student learning, and create a results orientation using evidence of student learning. After a fair and equitable competitive application process, DESE selected 10 schools and one district to serve as Cohort 1, beginning in 2017–18. Solution Tree provided all *PLC at Work* in Arkansas project schools with on-site support and professional development to build and sustain a strong culture of collaboration focused on enhancing student learning. Each site was assigned a team of Solution Tree associates, who provided up to 50 days annually of on-site support, drawing on Solution Tree resources and their professional expertise.

The purpose of this technical brief is to share more detailed results and to describe more fully the sample and methods used to document *PLC at Work* implementation, as well as its outcomes, based on data gathered from September 2017 through June 2020. During this time, the evaluation documented Cohort 1 *PLC at Work* activities and changes in participants' perceptions of progress on key interim outcomes. The evaluation team also documented the impact of *PLC at Work* on outcomes for Cohort 1 in Year 2 of the evaluation, as Year 3 (2019–20) student data were not available due to the COVID-19 pandemic.

Cohort 1 schools

The characteristics of the *PLC at Work* project schools chosen by DESE reflected the diversity of students and communities across Arkansas when they were selected (Torres et al., 2018) and throughout the three years they received services. They included urban, suburban, and rural schools, and they were representative of all schools in Arkansas (figure 1).

Figure 1. PLC at Work in Arkansas Cohort 1 schools



Source: Solution Tree Inc.

On average, Cohort 1 schools served close to 587 students in 2019–20. Among these students, about two-thirds were eligible for free or reduced-price lunch, and less than half met proficiency standards on the ACT Aspire math and literacy assessments in 2018–19 (table 1).¹ In addition, Cohort 1 schools tended to be more racially diverse than other schools in Arkansas.

Compared with schools not included in the project, Cohort 1 schools served students with similar demographic characteristics, had similar ACT Aspire assessment proficiency rates, and employed teachers with similar levels of education and teaching experience. In 2019–20, there were no statistically significant demographic differences between Cohort 1 schools and all non-participating schools in Arkansas. These results are consistent with data from the baseline year (2016–17) and continue to suggest potential generalizability of findings to other schools in Arkansas (see table 1).

¹ 2019–20 ACT Aspire assessment results were not available due to the COVID-19 pandemic.

Table 1. Characteristics of Cohort 1 schools compared with other schools in Arkansas, 2019–20

	Cohort 1 schools	All non-participating schools in Arkansas
<i>Student demographic characteristics</i>		
Average number of students enrolled	587	457
Number of students per teacher	13	12
Average class size	18	16
Percentage of students who are Black	26%	21%
Percentage of students who are Hispanic	16%	12%
Percentage of students who are white	53%	62%
Percentage of students who are eligible for free or reduced-price lunch	66%	64%
Percentage of students who are English learners	10%	7%
Percentage of students with special needs	12%	14%
<i>Percentage of students who met or exceeded standards on the 2018–19* ACT Aspire assessments</i>		
Literacy	41%	43%
Math	47%	46%
Science	38%	38%
<i>Teacher characteristics</i>		
Percentage of teachers with a master's degree	41%	36%
Average years of teaching experience	11	11
Percentage of inexperienced teachers	18%	18%
Percentage of teachers not returning to their schools	16%	18%

*2019–20 ACT Aspire assessment results were not available due to the COVID-19 pandemic.

Note: There were no statistically significant demographic differences between Cohort 1 schools and non-participating schools.

Source: Arkansas Division of Elementary and Secondary Education School Report Card.

The *PLC at Work* in Arkansas logic model

Evaluation activities for *PLC at Work* in Arkansas closely follow a logic model of the project's resources, activities, and interim outcomes (figure 2). Logic models explain how various inputs and activities connect to interim outcomes that may ultimately lead to a long-term impact (W.K. Kellogg Foundation, 2004).

The *PLC at Work* in Arkansas logic model was developed by Education Northwest in partnership with Solution Tree, and it shows how *PLC at Work* accomplishes what it sets out to do. When schools make progress on *PLC at Work* processes, they increase their interest in and capacity to do the work, improve their instructional practice, and begin to increase student engagement—which, in turn, helps drive continuous student achievement and engagement in goal setting and progress monitoring. See figure 3 for the detailed logic model.

Figure 2. PLC at Work in Arkansas logic model (summary)

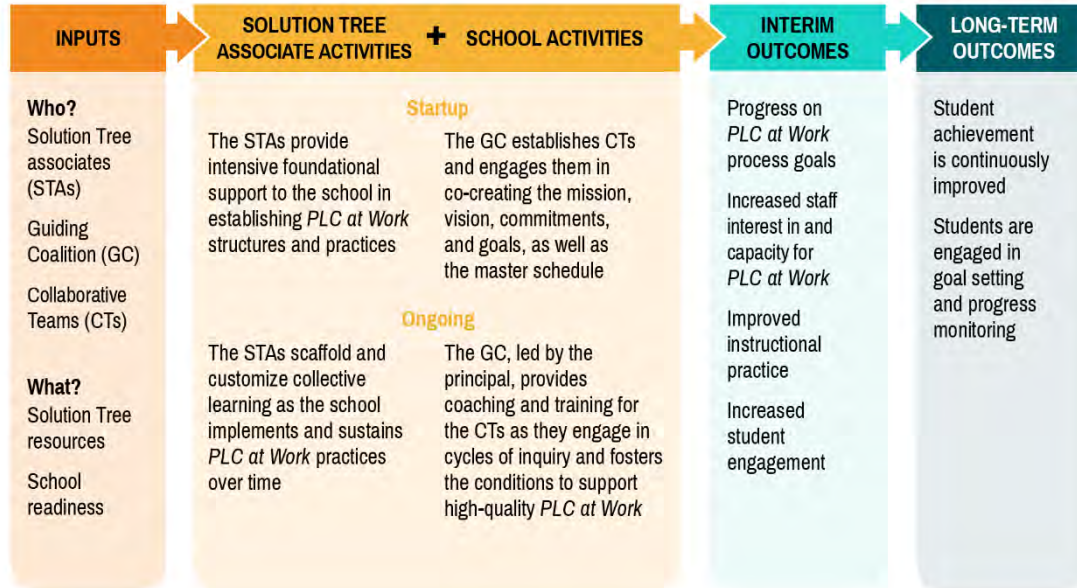
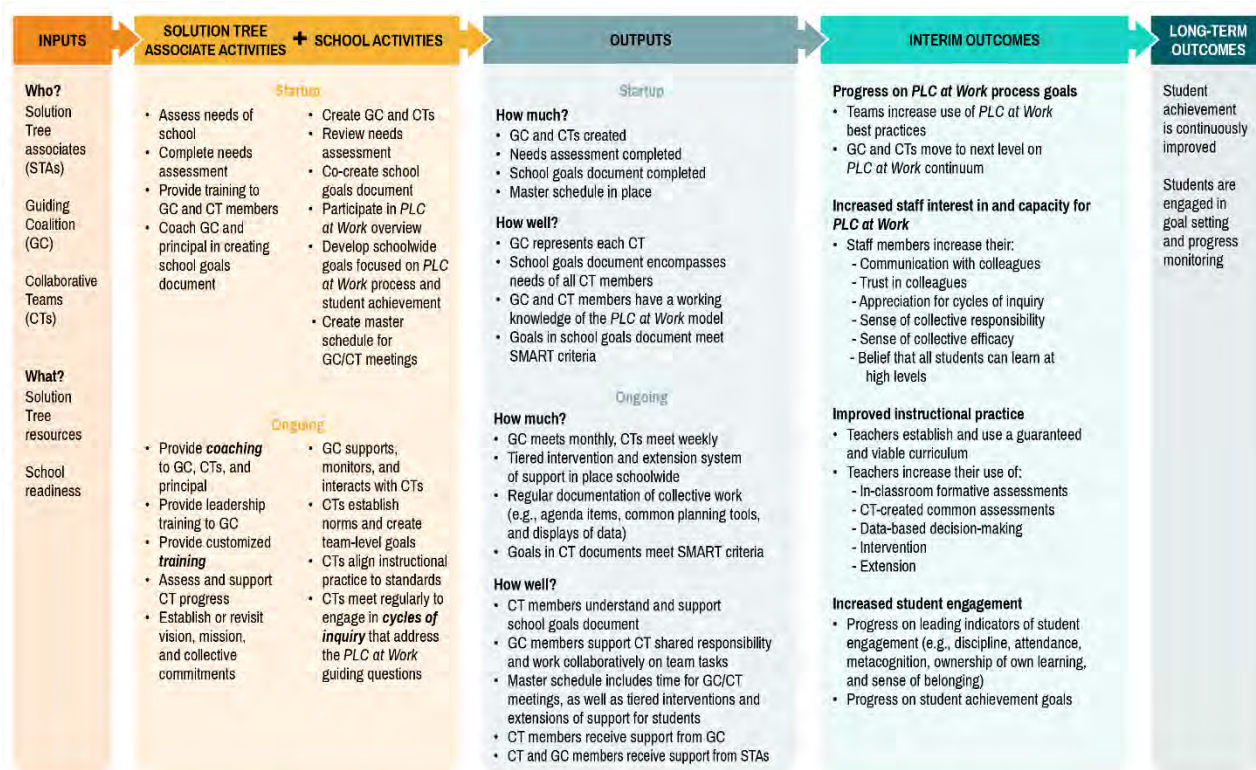


Figure 3. PLC at Work in Arkansas logic model (detailed)



Foundational Assumptions for PLC at Work

- PLC are processes that infuse all aspects of a school rather than a specific activity or model
- PLC require systems alignment (change in structure) and coherence (change in mindset)
- High-quality PLC require a schoolwide focus on ensuring that all students learn at high levels
- For all students to learn, adults need to be learning
- A collaborative culture and collective effort support both student and adult learning
- A results orientation improves instructional practice and drives continuous improvement

Given these assumptions, PLC at Work teams are guided by four questions:

1. What is it we want our students to know and be able to do?
2. How will we know if each student has learned it?
3. How will we respond when some students do not learn it?
4. How will we extend the learning for students who have demonstrated proficiency?

PLC at Work in Arkansas evaluation data sources

Data sources for the Year 3 evaluation report included surveys, on-site data collection, Cohort 1 school documents, and school and student data. Solution Tree and its partners had the opportunity to review and comment on all protocols developed for this evaluation. Below, we describe each data source in more detail.

Surveys

Education Northwest created the survey for the *PLC at Work* in Arkansas evaluation. We based the survey items on the logic model, which we developed in partnership with Solution Tree. We also drew on previously developed and validated surveys for items measuring the interim outcomes of the implementation process.

Throughout the three-year evaluation, responses to annual online surveys provided essential information about *PLC at Work* implementation in project schools, as well as participants' perceptions of the project and its outcomes. We analyzed all survey items using descriptive statistics (such as averages and ranges) and inferential statistics (such as *t*-tests and correlations), as appropriate.

Surveys of *PLC at Work* in Arkansas project school staff members took place at the end of 2019–20. In 2018, participants were asked to respond twice to each question to create baseline responses (i.e., asking about perceived changes since starting *PLC at Work* in September 2018) and end-of-year survey responses (i.e., asking how participants currently felt about these items). Participants were surveyed again each spring to provide a Year 2 (2019) and Year 3 (2020) comparison. School staff members were asked about their perceptions of:

- Solution Tree supports
- *PLC at Work* startup and ongoing school activities
- Interim outcomes during Cohort 1's third year of implementation

The end-of-year survey yielded 410 responses from educators in nine schools and one district. Response rates by school ranged from 63 to 100 percent, with an average of 83 percent, in 2020. The 2020 survey respondents were teachers (80 percent), principals (5 percent), and additional school staff members (including instructional coaches/facilitators, counselors, and paraprofessionals) (table 2). On average, respondents had 16 years of experience in education, with an average of nine years at their current school in 2020. Only 1 percent of Cohort 1 survey respondents were new to their school in 2019–20.²

² In 2019–20, we provided principals with a list of school staff members from 2018–19 and asked them to update the list with any new teachers and remove any staff members no longer at the school. Due to this process, it is unclear whether the percentage of new teachers at Cohort 1 schools is accurate.

Table 2. Characteristics of Cohort 1 school survey participants, 2018–2020

Characteristics	2018		2019 ¹		2020	
	Average	Range	Average	Range	Average	Range
Total years of working experience	15	5 to 25 years	15	0 to 49	16	0 to 50
Years of working experience in school	9	1 to 17 years	8	0 to 43	7	0 to 44
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
<i>Position^a</i>						
Teacher	374	80%	283	77%	329	80%
Coach/facilitator	11	2%	28	8%	31	8%
Administrator ^b	27	6%	25	7%	22	5%
Counselor	14	3%	13	4%	15	4%
Librarian/media specialist	13	3%	9	2%	7	2%
Paraprofessional	18	4%	8	2%	7	2%
Other professional ^c	10	2%	2	1%	2	0%
Guiding coalition members	128	28%	121	29%	127	69%
Collaborative team members ^d	453	96%	408	97%	402	97%
New to Cohort 1 school in 2018	--	--	63	15%	--	--
New to Cohort 1 school in 2019	--	--	--	--	2	1%

¹ In 2019, 12 percent of respondents did not indicate a position but completed the rest of the survey. Therefore, the frequency of each position will not add up to the total response numbers.

^b Other administrators include district administrator, credit recovery, dean of students, and administrative assistant.

^c Other professionals include secretary, speech pathology, interventionist, district school improvement specialist, and custodian.

^d Collaborative team member frequency was calculated from the overall sample minus survey responses of “Never” meeting in collaborative teams or from analysis of write-in responses that indicated non-membership.

Note: Percentages may not equal 100 because of three missing values (1 percent) in the position.

Composite variable description and analysis

To measure several of the interim outcomes and two of the school activities, evaluators constructed composite variables based on previous research (tables 3 and 4). For example, “cycle of inquiry activities” consisted of 10 survey items, such as “We approach an issue by looking at data and evidence of student achievement.” Survey respondents rated these items on scale in which 1 was “not at all,” 2 was “a little,” 3 was “some,” and 4 was “a lot.” To measure internal consistency (the rate at which a respondent answered a group of questions with consistency) of the survey items, we conducted reliability testing using Cronbach’s alpha. The results suggested that those composite variables had relatively high internal consistency (between 0.80 and 0.96 for 2018 variables, between 0.85 and 0.93 for 2019 variables, and between 0.74 and 0.87 for 2020 variables); a reliability coefficient of 0.80 or higher is considered high. Then evaluators averaged these 10 variables to construct a composite variable score, which ranged from 1 to 4.

The scale items varied across the composite variables. For example, an average composite score of 3.1 for a team’s cycle of inquiry activities would indicate that participants reported, on average, that their collaborative team “sometimes” engaged in the cycle of inquiry activities described in the 10 survey items. A similar score of 3.1 in goal clarity would signify that participants reported, on average, that they agreed with survey items related to goal clarity.

Composite variables that captured project schools’ 2019–20 progress on *PLC at Work* implementation activities found in the logic model (see figures 2 and 3) were represented by the following (table 3):

- “Goal clarity” captured progress on the extent to which respondents agreed or disagreed with statements regarding the extent to which “Collaborative team members understand and support their school goals document” under “Ongoing Outputs” in the logic model.
- “Cycle of inquiry activities” captured progress on the frequency with which “Collaborative teams meet regularly to engage in cycles of inquiry that address the *PLC at Work* guiding questions” under “School Activities” in the logic model.
- “Distributed leadership” captured progress on the extent to which respondents agreed or disagreed with statements regarding organizational conditions and activities that allowed the leadership team to “meet, support, and monitor *PLC at Work* implementation” under “Ongoing School Activities” in the logic model.

Table 3. Composite variables that captured school progress on PLC at Work implementation activities and corresponding survey items

Composite variables (reliability test)	Survey items
Goal clarity (2018 α = 0.80; 2019 α = 0.87; 2020 α = 0.76) ¹ <i>Source: Weinstock et al., 2016</i>	School improvement goals give me a sense of direction and purpose for my work.
	School improvement goals are well understood by most teachers and staff members in my school.
	The process to achieve school improvement goals is well understood by most teachers and staff members in my school.
Cycle of inquiry activities (2018 α = 0.95; 2019 α = 0.93; 2020 α = 0.88) ¹ <i>Source: Wayman et al., 2016</i>	We approach an issue by looking at data and evidence of student achievement.
	We discuss our preconceived beliefs about an issue.
	We identify essential standards that we will seek to track student progress on by using data.
	We explore data by looking for patterns and trends.
	We draw conclusions based on data.
	We identify additional data to offer a clearer picture of the issue.

	We use data to make links between instruction and student outcomes.
	When we consider changes in practice, we predict possible student outcomes.
	We revisit predictions made in previous meetings.
	We identify actionable solutions based on our conclusions.
Distributed leadership (2019 $\alpha = 0.86$; 2020 $\alpha = 0.81$) ¹ <i>Source: Davis, 2009</i>	Teachers in my school have opportunities to provide input on school-level decisions.
	Guiding coalition members have opportunities to lead guiding coalition meetings.
	My collaborative team receives useful support from the guiding coalition.
	The views and opinions of my collaborative team are well represented on the guiding coalition.
	Guiding coalition members have opportunities to participate in school-level decision-making.
	Teacher leaders play an important role in school improvement.
	Guiding coalition members have opportunities to guide school-level <i>PLC at Work</i> .

¹ “ α ” denotes internal consistency of composite variable.

Composite variables that captured project schools’ 2019–20 progress on *PLC at Work* interim outcomes were represented by the following (table 4):

- “Trust in colleagues” captured progress on the extent to which respondents agreed or disagreed with statements regarding “increased staff member trust in colleagues” as one part of the interim outcome of “Increased staff interest in and capacity for *PLC at Work*” in the logic model.
- “Collective responsibility” captured respondents’ perceptions of the extent to which “staff members have a sense of collective responsibility” as one part of the interim outcome of “Increased staff interest in and capacity for *PLC at Work*” in the logic model.
- “Collective efficacy” captured respondents’ perceptions of the extent to which “staff members have a sense of collective efficacy” as one part of the interim outcome of “Increased staff interest in and capacity for *PLC at Work*” in the logic model.
- “Schoolwide interventions and extensions for learning” captured progress on the extent to which respondents agreed or disagreed with statements regarding “teachers’ use of interventions and extensions” as one part of the interim outcome of “Improved instructional practice” in the logic model.

Table 4. Composite variables that captured school progress on PLC at Work interim outcomes and corresponding survey items

Composite variables (reliability test)	Survey items
Trust in colleagues (2018 $\alpha = 0.82$; 2019 $\alpha = 0.89$; 2020 $\alpha = 0.79$) ¹ <i>Source: Bryk & Schneider, 2002</i>	Teachers talk about instructional practices in the teachers' lounge and faculty meetings.
	Teachers in my school share and discuss student work with other teachers.
	Teachers make a conscious effort to coordinate the content of their courses with that of other teachers.
	Teachers in my school trust one another.
	It's OK in my school to discuss feelings, worries, and frustrations with other teachers.
	Teachers respect other teachers who take the lead in school improvement efforts.
Teachers in my school respect colleagues who are experts at their craft.	
Collective responsibility (2018 $\alpha = 0.88$; 2019 $\alpha = 0.91$; 2020 $\alpha = 0.82$) ¹ <i>Source: Supovitz, 2002</i>	Help maintain student engagement in the entire school, not just their classroom?
	Take responsibility for improving the school?
	Set high standards for themselves?
	Are eager to try new ideas?
	Feel responsible for helping students develop self-control?
	Feel responsible for helping one another do their best?
Feel responsible for ensuring all students learn?	
Collective efficacy (2018 $\alpha = 0.91$; 2019 $\alpha = 0.91$; 2020 $\alpha = 0.74$) ¹ <i>Source: Tschannen-Moran & Barr, 2004</i>	How much can teachers in your school do to produce meaningful student learning?
	How much can your school do to get students to believe they can do well with schoolwork?
	How much can teachers in your school do to help students master complex content?
	How much can teachers in your school do to promote deep understanding of academic concepts?
	How much can teachers in your school do to help students think critically?
How much can your school do to foster student creativity?	
Schoolwide interventions and extensions for learning (2018 $\alpha = 0.96$; 2019 $\alpha = 0.94$; 2020 $\alpha = 0.87$) ¹	My school has a system for accurately identifying students who need extra academic help.
	My school has a system for accurately identifying students who need additional academic challenges.
	My school offers extra academic help (for example, interventions or individualized support) to students who need it.

Source: Weinstock et al., 2016	My school offers academic enrichment to students who need it.
	Administrators and/or teachers develop instructional plans to meet the literacy instructional needs of struggling students.
	Administrators and/or teachers develop instructional plans to meet the math instructional needs of struggling students.
	Intervention is highly prescriptive toward improving identified literacy deficits of individual students.
	Intervention is highly prescriptive toward improving identified math deficits of individual students.
	Highly skilled teachers work with literacy -struggling/striving students.
	Highly skilled teachers work with math -struggling/striving students.
	Teachers use literacy strategies to support struggling/striving students' learning of content.
	Teachers use math strategies to support struggling/striving students' learning of content.
	My school has a plan to improve literacy and numeracy that supports strategies ranging from intervention for struggling students to expanding the reading and math power of all students.

¹“ α ” denotes internal consistency of composite variable.

Testing the difference between groups

The evaluation team grouped respondents by how they reported the implementation of aspects of *PLC at Work* (for example, whether their collaborative team met at least weekly). Then evaluators compared how respondents from each group rated several interim *PLC at Work* outcomes on the survey: collective responsibility, staff trust, teacher efficacy, and use of interventions and extensions. To detect statistically significant differences between groups, evaluators conducted independent samples *t*-tests.

Specifically, evaluators first dichotomized survey responses about frequency of collaborative team meetings so that “0” represented “less than weekly” and “1” represented “at least weekly.” Then evaluators used independent samples *t*-tests to ascertain whether there were statistically significant differences between these two groups in interim outcomes.

After that, evaluators examined whether there were statistically significant differences in reported interim outcomes between two groups based on how they perceived the 2019–20 progress they made in goal clarity, cycle of inquiry activities, distributed leadership, trust in colleagues, collective responsibility, collective efficacy, and a schoolwide system of interventions and extensions. Evaluators created a binary variable from average scores based on the items’ scale to ongoing activities. The binary scales for each variable were:

- 0 represented “strongly disagree to disagree” (or an average score of less than 3) and 1 represented “agree or strongly agree” (or an average score of 3 or higher) to statements

regarding goal clarity, distributed leadership, trust in colleagues, and schoolwide system of interventions and extensions

- 0 represented “never or rarely” (or an average score of less than 3) and 1 represented “sometimes or often” (or an average score of 3 or higher) regarding the frequency of cycle of inquiry activities
- 0 represented “none or only a few” (or an average score of less than 3) and 1 represented “some or a lot” (or an average score of 3 or higher) regarding the number of teachers who took collective responsibility
- 0 represented “not at all or very little” (or an average score of less than 3) and 1 represented “some or a lot” (or an average score of 3 or higher) regarding teachers’ collective efficacy

Then evaluators conducted independent samples *t*-tests to detect statistically significant differences in perceived progress toward interim outcomes.

On-site data collection and analysis

To understand *PLC at Work* in action and from multiple perspectives, seven Education Northwest staff members conducted full-day site visits at each project school between January and March 2020. The site visits allowed us to gather information about the interim outcomes, school activities, and Solution Tree activities summarized in the *PLC at Work* in Arkansas logic model (see figures 2 and 3).

At each Cohort 1 school, two Education Northwest staff members conducted focus groups with guiding coalitions and collaborative teams, interviews with administrators, and observations of meetings. Solution Tree associates were interviewed via phone. Overall data collected included:

- 10 focus groups with guiding coalition members
- 10 focus groups with collaborative team members from across the schools
- 12 interviews with school-level administrators
- 10 interviews with the lead Solution Tree associates
- 19 observations of collaborative team or guiding coalition meetings

One Cohort 1 site was participating as a districtwide versus schoolwide PLC, and its responses were aggregated with the rest of the Cohort 1 schools.

On-site data collection provided valuable background information on *PLC at Work* supports and implementation activities, as well as useful insight into how Solution Tree supports and school activities related to *PLC at Work* interim outcomes. All interviews were recorded and transcribed. Transcripts were stored in ATLAS.ti for thematic analysis.

Artifact review and analysis

Education Northwest also analyzed various artifacts from each school, including common formative assessments; guiding coalition and collaborative team meeting notes, norms, agendas, and membership lists; schoolwide missions, visions, and collective commitments; and schedules. When possible, we drew on previously collected data to reduce the time burden on participants. Documents were stored in ATLAS.ti for content analysis.

School and student data

School and student data were provided through a data-sharing agreement with DESE. Student achievement outcomes were measured using English language arts (ELA) and math ACT Aspire assessment scores, which were standardized within grade level and school year statewide to have a mean of 0 and a standard deviation of 1. The evaluation team used a quasi-experimental design that is eligible to meet Every Student Succeeds Act (ESSA) Tier II evidence standards. Due to a lack of available data during the COVID-19 pandemic, this analysis is based on only partial implementation of the *PLC at Work* model in Arkansas. For more information about the impact study, see http://dese.ade.arkansas.gov/public/userfiles/Special_Projects/plc-at-work-executive-summary_rv2.pdf.

Cohort 1 educator survey results for 2020

Surveys of *PLC at Work* in Arkansas project school staff members took place at the end of 2019–20. The end-of-year survey yielded 410 responses from educators in nine schools and one district. The rest of this section provides additional results from the survey.

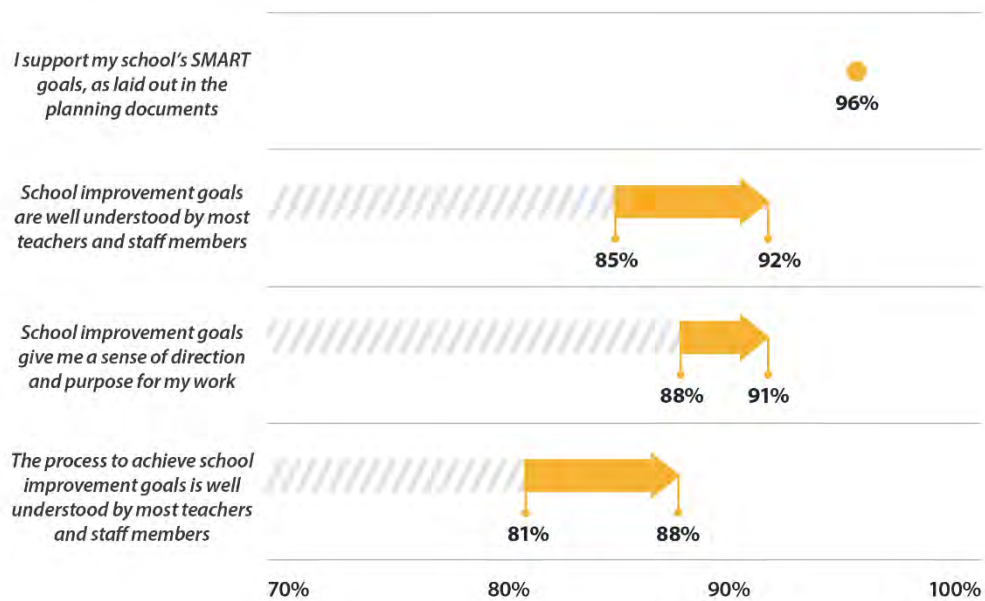
Figure 4. Changes in reported progress of creating school-level goals from 2017–18 to 2019–20



Note: Percentages reflect changes from Year 1 to Year 3 in respondents who indicated “agree” or “strongly agree.”

Source: Education Northwest analysis of end-of-year survey data.

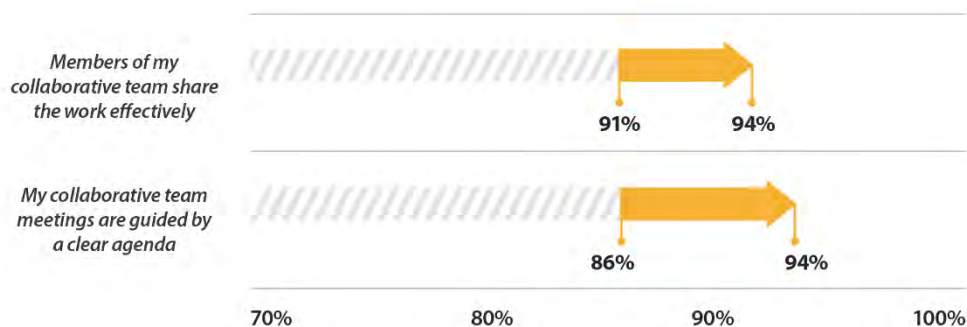
Figure 5. Change in support for and understanding of school improvement goals, 2017–18 to 2019–20



Note: Percentages reflect changes from Year 1 to Year 3 in respondents who indicated “agree” or “strongly agree.”

Source: Education Northwest analysis of end-of-year survey data.

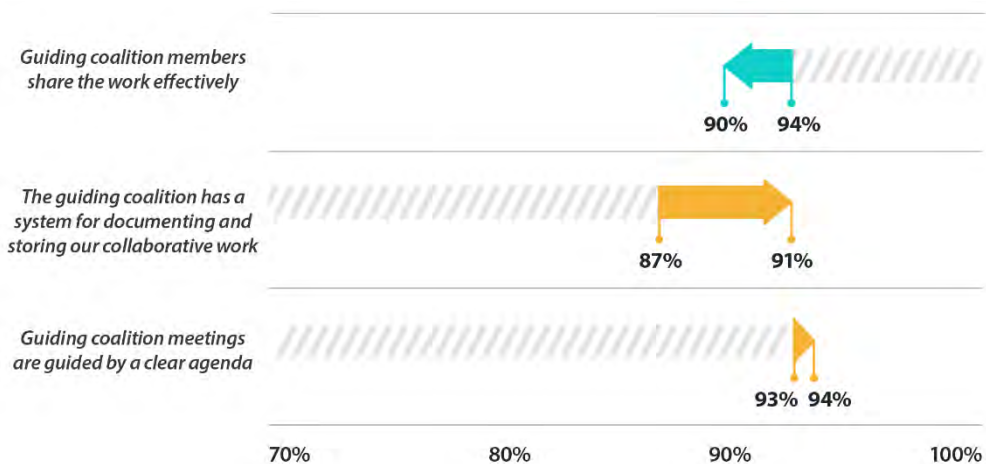
Figure 6. Changes in collaborative team meeting practices, 2017–18 to 2019–20



Note: Percentages reflect changes from Year 1 to Year 3 in respondents who indicated “agree” or “strongly agree.”

Source: Education Northwest analysis of end-of-year survey data.

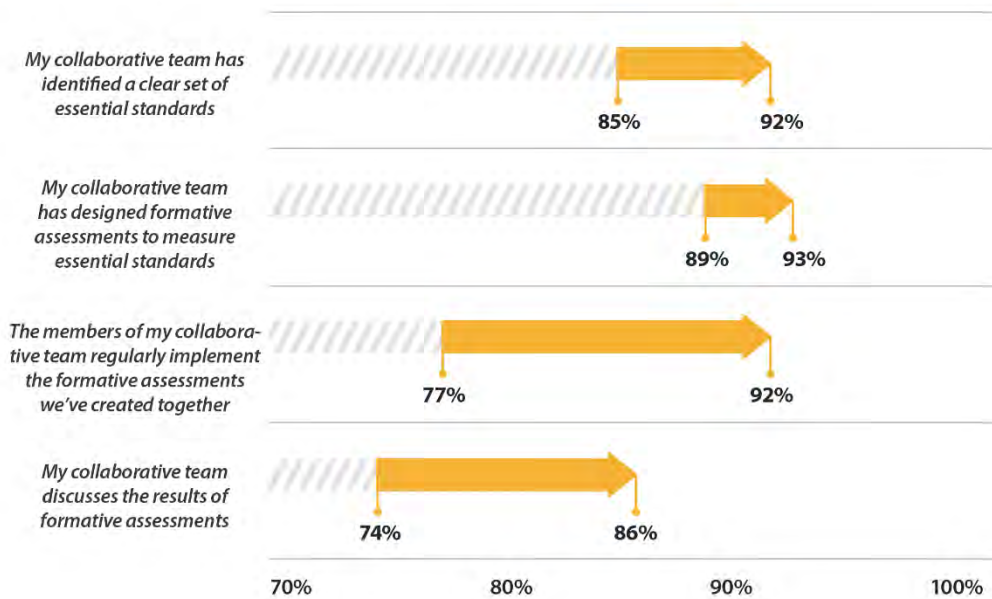
Figure 7. Changes in guiding coalition meeting practices, 2017–18 to 2019–20



Note: Percentages reflect changes from Year 1 to Year 3 in respondents who indicated “agree” or “strongly agree.”

Source: Education Northwest analysis of end-of-year survey data.

Figure 8. Changes in collaborative team meeting activities, 2017–18 to 2019–20



Note: Percentages reflect changes from Year 1 to Year 3 in respondents who indicated “agree” or “strongly agree.”

Source: Education Northwest analysis of end-of-year survey data.

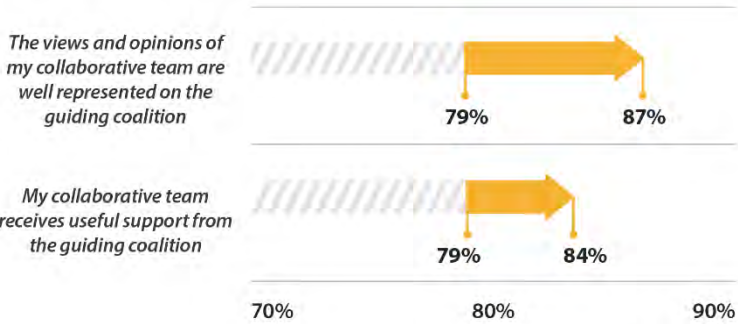
Figure 9. Changes in reported collaborative team cycle of inquiry activities, 2017–18 to 2019–20



Note: Percentages reflect changes from Year 1 to Year 3 in respondents who indicated “agree” or “strongly agree.”

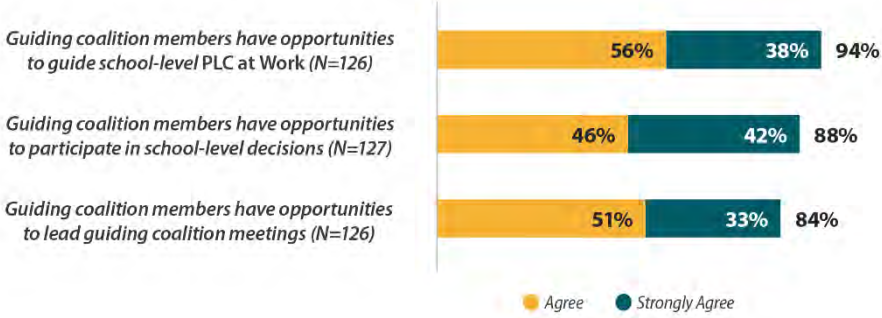
Source: Education Northwest analysis of end-of-year survey data.

Figure 10. Changes in guiding coalition support to collaborative teams, 2017–18 to 2019–20



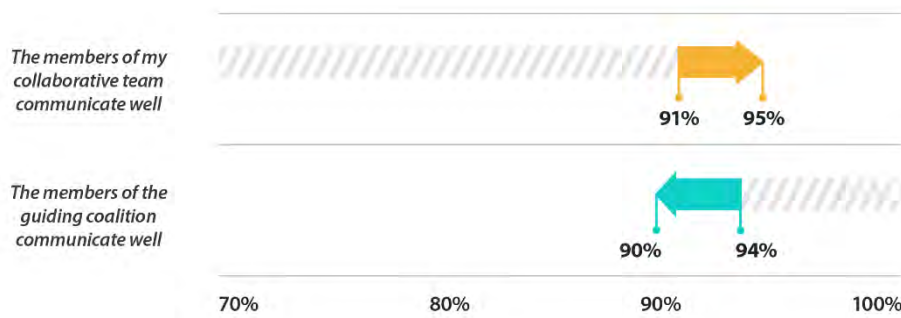
Note: Percentages reflect changes from Year 1 to Year 3 in respondents who indicated “agree” or “strongly agree.”
 Source: Education Northwest analysis of end-of-year survey data.

Figure 11. Guiding coalition members’ perceptions of leadership opportunities, 2019–20



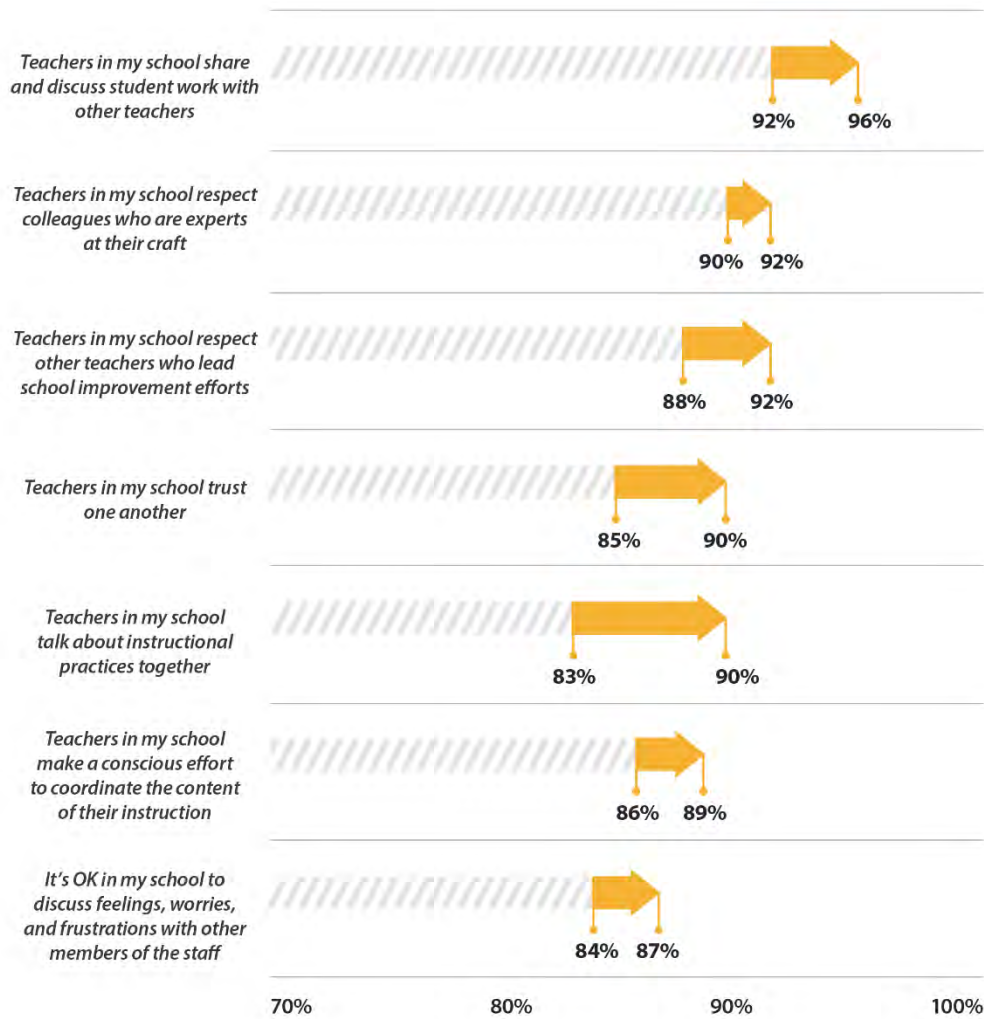
Source: Education Northwest analysis of end-of-year survey data.

Figure 12. Changes in reported collaborative team and guiding coalition communication, 2017–18 to 2019–20



Note: Percentages reflect changes from Year 1 to Year 3 in respondents who indicated “agree” or “strongly agree.”
 Source: Education Northwest analysis of end-of-year survey data.

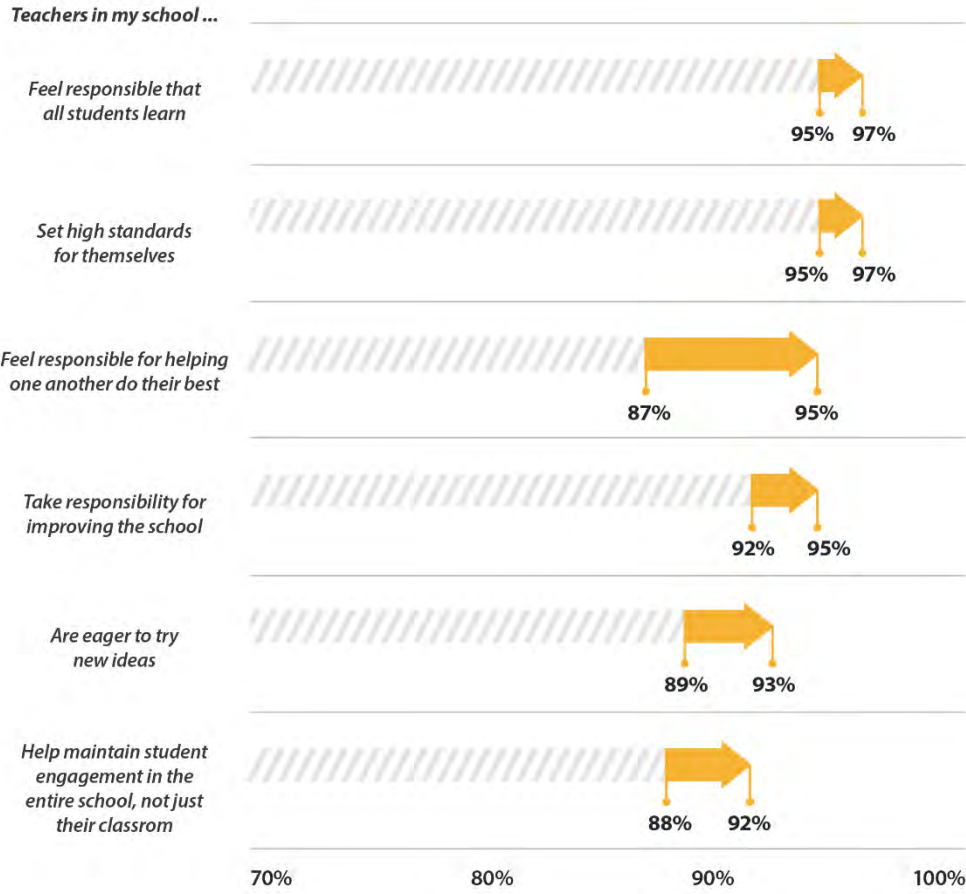
Figure 13. Perceived changes in teacher trust, 2017–18 to 2019–20



Note: Percentages reflect changes from Year 1 to Year 3 in respondents who indicated “agree” or “strongly agree.”

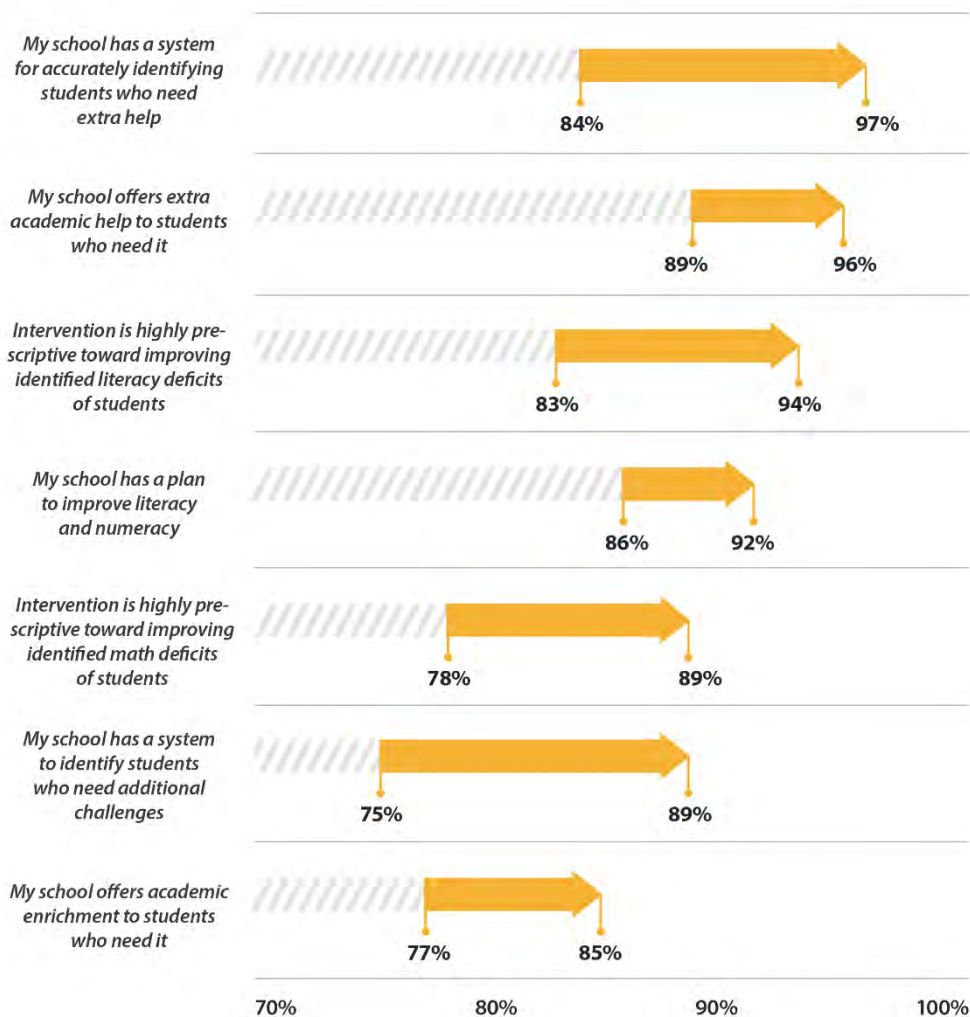
Source: Education Northwest analysis of end-of-year survey data.

Figure 14. Changes in reported collective responsibility for student learning, 2017–18 to 2019–20



Note: Percentages reflect changes from Year 1 to Year 3 in respondents who indicated “some” or a lot.”
 Source: Education Northwest analysis of end-of-year survey data.

Figure 15. Perceived changes in a schoolwide system of interventions and extensions, 2017–18 to 2019–20



Note: Percentages reflect changes from Year 1 to Year 3 in respondents who indicated “agree” or “strongly agree.”

Source: Education Northwest analysis of end-of-year survey data.

Relationships between *PLC at Work* in Arkansas implementation and interim outcomes

This analysis examines the relationships between educators' reports of implementation of *PLC at Work* and survey responses related to interim outcomes. Overall, the progress respondents reported on most *PLC at Work* activities was associated with improved school culture and instruction to support student learning. In addition, staff members who reported that their school made progress in sharing teacher leadership for implementation were also likely to report improvements in teacher interim outcomes.

The evaluation team used a statistical method (independent samples *t*-tests) to explore these relationships. The implementation activities examined in these analyses were associated with progress on key ongoing activities—rather than foundational structures—and contained variation in responses. For example, because all Cohort 1 schools had collaborative teams, we could not test how having or not having collaborative teams was associated with interim outcomes.

The implementation activities that met the criteria for inclusion in the analysis were:

- **Weekly collaborative team meetings** (whether a team met at least weekly)
- **Cycle of inquiry activities** (perceived changes to data and inquiry practices using evidence of student learning to make actionable decisions)
- **Goal clarity** (perceived changes in staff members' understanding and support of schoolwide goals)
- **Distributed leadership** (perceived changes to adequate time and opportunities for teacher leadership)

Outcomes explored included:

- **Collective responsibility** (perceived changes in staff members' feelings of responsibility and accountability to improve student outcomes)
- **Trust in colleagues** (perceived changes in teachers' trust in their school)
- **Collective efficacy** (perceived changes in staff members' feelings of efficacy to improve student outcomes)
- **Schoolwide interventions and extensions for learning** (perceived changes in the extent to which the school established, implemented, and supported a system of interventions and extensions)

This analysis draws on Cohort 1 end-of-year survey data from Year 1 and Year 3. Findings will help inform future data collection and analysis of school- and team-level factors that affect interim teacher outcomes and long-term student academic outcomes.

Meeting weekly was an important indicator of progress in Years 1 and 2

To implement *PLC at Work*, collaborative teams should meet at least weekly (Mattos et al., 2016). This finding has been supported by previous analysis of *PLC at Work* in Arkansas during the first and second years of implementation (Torres et al., 2018; Torres, Rooney, Holmgren, & Taylor, 2019). By the end of Year 3, there was no significant relationship between the frequency of collaborative team meetings and interim outcomes. This is likely due to most respondents (91 percent) indicating that they met weekly by Year 3, making it difficult to identify whether mean differences between these two groups were statistically significant (that is, whether the differences were large enough to rule out the possibility that they occurred by chance).

After three years, collaborative teams that met at least weekly reported about the same amount of progress toward *PLC at Work* interim outcomes in collective responsibility and efficacy, trust in colleagues, and schoolwide systems of interventions and extensions as collaborative teams that met less often (table 5). This indicates the relationship between meeting weekly and interim outcomes may potentially diminish after most schools implement weekly meetings and make progress on other important aspects of *PLC at Work* that affect teacher interim outcomes.

Table 5. Differences in PLC at Work interim outcomes associated with collaborative team meeting frequency, 2019–20

	Average scores		
	Met less than weekly (number of respondents)	Met at least weekly (number of respondents)	Difference in average
Collective efficacy ²	3.69 (36)	3.77 (358)	0.08
Collective responsibility ²	3.58 (36)	3.50 (356)	-0.08
Schoolwide system of interventions and extensions ¹	3.37 (33)	3.32 (346)	-0.05
Trust in colleagues ¹	3.22 (33)	3.21 (353)	-0.01

¹ Scale: 1 = strongly disagree progress was made, 2 = disagree progress was made, 3 = agree progress was made, 4 = strongly agree progress was made.

² Scale: 1 = no teachers made progress, 2 = only a few teachers made progress, 3 = some teachers made progress, 4 = a lot of teachers made progress.

Note: The table is ordered from greatest to smallest difference.

Source: Education Northwest analysis of end-of-year survey data.

Increases in the use of cycle of inquiry activities was consistently associated with significant progress on interim outcomes

The focus on results in *PLC at Work* involves collaborative teams regularly engaging with evidence of student learning to identify, track, and improve opportunities to learn in the classroom. We explored the relationships between average collaborative team progress on cycle of inquiry activities and average scores for interim teacher outcomes. This analysis determined whether cycle of inquiry activities (i.e., perceived changes to data and inquiry practices using

evidence of student learning to make actionable decisions) was an important factor in Cohort 1 schools' overall progress toward interim outcomes.

To create an overall representation of cycle of inquiry activities, we drew from 10 survey items about the extent to which respondents felt their collaborative team had improved in its data and inquiry practices. Analysis of these items found that educators who reported, on average, that their team “sometimes” or “often” implemented cycle of inquiry activities were more likely to also report positive changes in the *PLC at Work* interim outcomes of trust in colleagues, collective responsibility, collective efficacy, and schoolwide system of interventions and supports than those who reported less use of cycle of inquiry activities (table 6).

As in prior years, progress in cycle of inquiry activities was significantly associated with the largest changes in collective responsibility (average difference of 0.60), trust in colleagues (average difference of 0.51), use of interventions and extensions (average difference of 0.48), and collective efficacy (average difference of 0.26). This indicates that growth in educators' use of cycle of inquiry activities is associated with similar growth in trust, use of interventions and extensions, and collective efficacy and responsibility.

Table 6. Differences in PLC at Work interim outcomes associated with use of cycle of inquiry activities, 2019–20

	Average scores		
	Never or rarely implemented (number of respondents)	Sometimes or often implemented (number of respondents)	Difference in average
Collective responsibility ²	2.98 (44)	3.58 (327)	0.60**
Trust in colleagues ¹	2.76 (44)	3.27 (326)	0.51**
Schoolwide system of interventions and extensions ¹	2.90 (44)	3.38 (316)	0.48**
Collective efficacy ²	3.53 (43)	3.79 (328)	0.26**

* p<0.05, ** p<0.01

¹ Scale: 1 = strongly disagree progress was made, 2 = disagree progress was made, 3 = agree progress was made, 4 = strongly agree progress was made.

² Scale: 1 = no teachers made progress, 2 = only a few teachers made progress, 3 = some teachers made progress, 4 = a lot of teachers made progress.

Note: The table is ordered from greatest to smallest difference.

Source: Education Northwest analysis of end-of-year survey data.

Growth in goal clarity continued to be significantly associated with interim outcome progress in Year 3

As schools create their schoolwide mission, vision, and goals for improvement, it is important that all staff members understand and are guided by this foundation for *PLC at Work*. To understand whether goal clarity (i.e., the extent to which staff members understand, support, and are guided by schoolwide goals) was an important factor in progress toward interim

outcomes, we explored the relationships between the average goal clarity reported by staff members and the average scores for interim teacher outcomes.

To create an overall representation of school improvement goal clarity, we drew from three survey items about the extent to which staff members understood and supported the school goals document. Individuals who agreed or strongly agreed with statements regarding increased schoolwide goal clarity also reported, on average, more progress on multiple *PLC at Work* interim outcomes than those who disagreed or strongly disagreed with statements related to goal clarity improvement (table 7).

As in Year 2, progress toward goal clarity in Year 3 was associated with the large positive changes in trust in colleagues (average difference of 0.54), schoolwide system of interventions and extensions (average difference of 0.50), and collective responsibility (average difference of 0.49). In other words, as staff members grew in their overall understanding of schoolwide goals, they were also likely to report similar positive changes in building trust, collective responsibility, and their schoolwide system of interventions and extensions. A smaller—but still significant—difference was found in collective efficacy (average difference of 0.20).

Table 7. Differences in PLC at Work interim outcomes associated with goal clarity, 2019–20

	Average scores		Difference in average
	Disagree or strongly disagree (number of respondents)	Agree or strongly agree (number of respondents)	
Trust in colleagues ¹	2.76 (62)	3.30 (321)	0.54*
Schoolwide system of interventions and extensions ¹	2.91 (61)	3.41 (313)	0.50**
Collective responsibility ²	3.09 (61)	3.58 (326)	0.49**
Collective efficacy ²	3.59 (62)	3.79 (326)	0.20**

* p<0.05, ** p<0.01

¹ Scale: 1 = strongly disagree progress was made, 2 = disagree progress was made, 3 = agree progress was made, 4 = strongly agree progress was made.

² Scale: 1 = no teachers made progress, 2 = only a few teachers made progress, 3 = some teachers made progress, 4 = a lot of teachers made progress.

Note: The table is ordered from greatest to smallest difference.

Source: Education Northwest analysis of end-of-year survey data.

Schools with opportunities and conditions for distributed leadership saw greater progress on interim outcomes

Finally, it is important that leadership for *PLC at Work* is shared among teacher leaders in a school (Spiller & Power, 2019). To understand whether distributed leadership (i.e., the extent to which guiding coalition members report adequate time and opportunities for teacher leadership) was an important factor in progress toward interim outcomes, we explored the

relationship between guiding coalition members' average distributed leadership scores and average scores for interim teacher outcomes.

To create an overall representation of distributed leadership, we drew from seven survey items about organizational conditions and activities that allow guiding coalition members and teacher leaders alike to support *PLC at Work* implementation. Individuals who, on average, agreed or strongly agreed with statements regarding progress on organizational conditions and activities related to distributed leadership also reported more progress on *PLC at Work* interim outcomes than those who strongly disagreed or disagreed with statements regarding positive changes to distributed leadership.

The analysis indicated that progress toward distributed leadership was associated with the largest positive changes in trust in colleagues (average difference of 0.43), schoolwide system of interventions and extensions (average difference of 0.39), and collective responsibility (average difference of 0.37). In other words, guiding coalition members in schools that made improvements in distributed leadership in *PLC at Work* were also likely to report similar positive changes in trusting colleagues, feeling responsible for student outcomes, and creating a schoolwide system of interventions and extensions.

Table 8. Differences in guiding coalition members' PLC at Work interim outcomes associated with distributed leadership, 2019–20

	Average scores		Difference in average
	Strongly disagree or disagree (number of respondents)	Agree or strongly agree (number of respondents)	
Trust in colleagues ¹	2.99 (24)	3.42 (93)	0.43**
Schoolwide system of interventions and extensions ¹	3.10 (24)	3.49 (92)	0.39**
Collective responsibility ²	3.30 (25)	3.67 (95)	0.37**
Collective efficacy ²	3.83 (26)	3.83 (97)	0.00

* p<0.05, ** p<0.01

¹ Scale: 1 = strongly disagree progress was made, 2 = disagree progress was made, 3 = agree progress was made, 4 = strongly agree progress was made.

² Scale: 1 = no teachers made progress, 2 = only a few teachers made progress, 3 = some teachers made progress, 4 = a lot of teachers made progress.

Note: The table is ordered from greatest to smallest difference.

Source: Education Northwest analysis of end-of-year survey data.

In addition, it is important to note that 87 percent of guiding coalition survey respondents agreed, on average, with statements regarding organizational conditions and activities that created distributed leadership in their school. Despite the lack of variation among respondents on distributed leadership and the small comparison group, the differences between the groups was large enough to achieve statistical significance—indicating a potentially important

relationship between schoolwide distributed leadership and progress on teacher trust, collective responsibility, and the creation of systems of interventions and extensions.

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