Catalyst Schools Research Study Report

Catalyst Schools' Implementation of the Learning School Approach

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Catalyst schools were 28 elementary and secondary schools selected to participate in a pilot project begun in July 2014, which explored how best to support teacher professional learning through decentralization of decision making and implementation of the Learning School approach. The pilot project was the first phase in a statewide initiative that would be scaled up to all public schools in the state in the 2016-2017 school year.

Learning Forward, a national professional learning association, developed the Learning School approach as a model for implementation of the Standards for Professional Learning. The standards make up a framework for continuous school improvement based on ongoing educator learning to support positive student outcomes. The West Virginia Board of Education (WVBE) adopted the standards in 2012; the Learning School Initiative was the Board's call for systematic implementation of the standards.

This report focuses on levels of implementation of the Learning School approach achieved by catalyst schools across the state. It is the fourth in a series of reports based on a research study, "Developing Effective Professional Learning Communities in Catalyst Schools," conducted between February 2015 and June 2016.

Variation in Levels of Implementation

Focus group interviews with principals in late 2015 and early 2016 revealed that catalyst schools were having a wide range of experiences in the Learning School Initiative. Most catalyst schools were selected because they already had many of the Learning School elements in place, especially professional learning communities (PLCs) scheduled during the regular school day and an ongoing practice of using student data to guide instruction.

The principal interviews provided evidence that some schools had embraced the Learning School approach and were using it to further improve teaching and learning. Administrators from a few other catalyst schools did not find the orientation session held in July 2015 very useful or beneficial, and appeared not to have engaged with the Learning School approach to any significant degree. Other principals interviewed during this time period were just beginning to turn their attention to implementing the Learning School approach after spending the first half of the 2015-2016 school year preparing for visits by the West Virginia Office of Education Performance Audits (OEPA), the school monitoring and accreditation agency in the state.

Likewise, some regional education service agencies (RESAs)—the agencies assigned responsibility for supporting implementation of the Learning School approach—appeared to be fully engaged in supporting their catalyst schools, while others remained focused on OEPA audits and other priorities.

To develop a clearer picture of this variation among schools and RESAs, this study focused on the interpretation of five main data sources as measures of implementation:

1. *Time allotted in schedules for PLCs.*
2. *Types of activities included in PLC agendas.*
3. *Standard Assessment Inventory 2 (SAI2) scores.*
4. *Focus group interviews with principals.*
5. *RESA and the West Virginia Department of Education's (WVDE) assessments of each school's stage of implementation.*

This analysis assigned ratings on a 5-point scale for four of these measures (Items 1-3, 5), with *1* representing a very low level of implementation and *5* representing a very high level. In the following sections, I describe how those ratings were derived and display aggregate findings at the state and RESA levels. The Item 4 measure was used to supplement the SAI2 measure (see Item 3) and was not included in the scoring.

Note: RESAs have been given randomly assigned pseudonyms in all of the analyses in this report to protect the confidentiality of the catalyst schools. For additional information about methods used in this study see, *Catalyst Schools Research Study Technical Report*, found on the WVDE Office of Research, Accountability, and Data Governance website at http://wvde.state.wv.us/research/reports2016.html.

Time allotted in schedules for PLCs

Time is the starting point; without sufficient time in schedules, it is difficult to have success as a Learning School. In response to a request, twenty-five catalyst schools provided information about the schedules for their PLCs. From that information I calculated the number of minutes typical PLCs met per month at each catalyst school. I then derived a 5-point scale, with the top of this scale (5 points) approaching the amount of time recommended in the literature (45 minutes, 4 days a week)[1] and the bottom of the scale equaling less than one 45-minute sessions every two weeks (see Figure 1 for additional details about the scale).

As Figure 1 shows overall, PLCs in catalyst schools were meeting for 45 minutes, less often than 1 time a week—a rate far lower than that called for in the research literature (see Discussion section).[2]

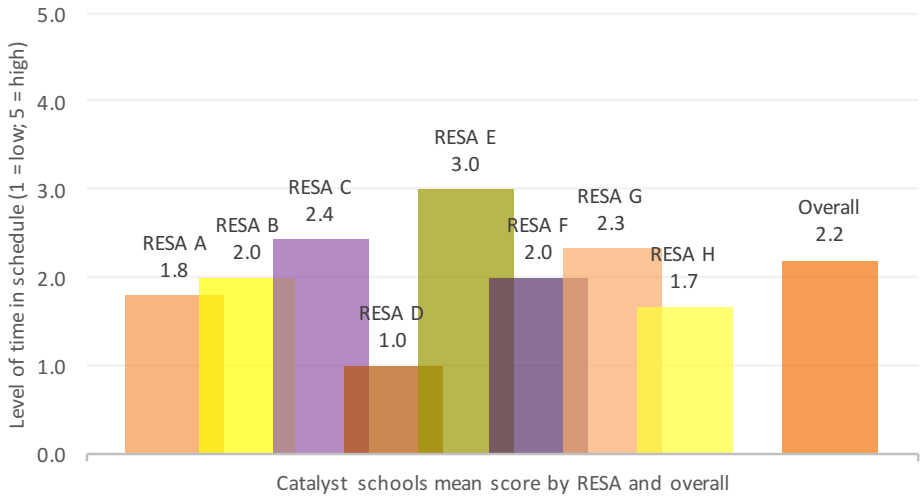

Figure 1. Mean Rating for Amount of Time Scheduled for PLCs Overall and by RESA

Data source: PLC schedules supplied by catalyst school principals. Scale: 5 = 720+ (min. 4 days/week @ 45 minutes/day or more); 4 = 360 - 719 (min. = 2 days/week @ 45 minutes/day); 3 = 180 - 359 (min. = 1 day/week @ 45 minutes/day); 2 = 90 - 179 (min. = 2 day/month @ 45 minutes/day); 1 = 0 - 89 (less than 2 day/month @ 45 minutes/day).

This finding aligns with the oft-cited concern in focus group settings that there simply was not enough time for PLCs to meet. The average overall score of 2.2 obscures the considerable range of experiences, but this figure does point to the need for more support in developing schedules and calendars that will reserve more time for professional learning. The average scores, reported in Figure 1 by RESA, give a picture of the range among catalyst schools.

Types of activities included in PLC agendas

Even with time available, the way the time is used is crucial to the quality of professional learning. Eighteen schools responded to a request for copies of their PLC agendas for the month of February 2016.[3] The agendas were anonymized and agenda items were numbered and categorized separately by two individuals, using the categories shown in the sidebar (next page). When categories assigned to a particular agenda topic differed between the two raters, a discussion ensued and consensus was reached about the appropriate category.

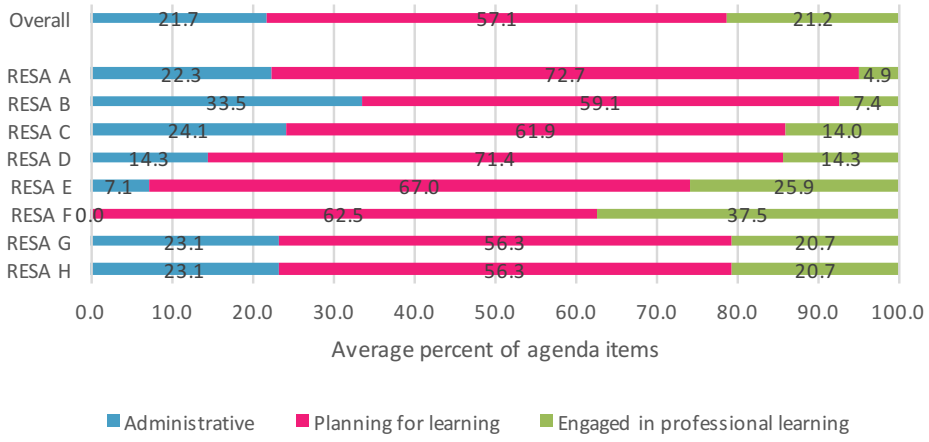

Figure 2. Percent of Catalyst School PLC Agenda Items by Category of Activity and RESA

Data source: PLC agendas submitted for the month of February 2016 by 18 catalyst schools.

For each school, percentages of agenda topics were calculated for each of the major categories. Those percentages were then averaged across the state and individual RESAs.

Figure 2 shows that the large majority of agenda items fell into the *planning for learning* category. Not shown here, but present in the more detailed data was evidence that the vast majority of that planning was focused on student learning, with a small percentage focused on planning for teacher learning.

In the 5-point scoring scheme (needed for the final composite score), agenda items were weighted; those focused on professional learning were weighted 1.5 points because they are the most desirable activities to be taking place during PLCs. Based on the assumption that there is some degree of learning and sharing that takes place when collaborative teams get together to review student data and make plans for student learning, 1 point was given for each planning item. A negative one quarter point (-.25) point was assigned for each percentage point of administrative tasks more appropriately handled in faculty meetings or other modes of communication.

Categories of Activities Included in Catalyst School PLC Agendas

Administrative information sharing

- *Logistics/schedules*—Field trips, school events, bus schedules, etc.
- *Procedures*—Management, GSA testing, WVEIS reporting, fire drills, and other related topics
- *News/info*—Change from NCLB to ESSA, school board decisions, etc.
- *Other*—Additional administrative topics

Planning for learning

- *Student learning*—Reviewing individual and group-level student academic and early warning data, making adjustments, monitoring progress, planning PBL projects, and other related topics
- *Professional learning*—Planning for teacher learning needs based on student needs and based on educator evaluation, IPI, SAI2, OEPA data and other data
- *Other planning for learning*—Additional planning topics

Engaging in professional learning

- *Student behavior/school climate/parent involvement*—PBIS, school climate and culture, parent involvement, attendance matters, using the early warning data, and other related topics
- *Content/pedagogy*—Content area, instruction, formative assessment, how to use student data, using new curriculum materials, etc.
- *Professional learning systems*—Becoming a Learning School, effective PLCs, IPI training, etc.
- *Other*—PD on other topics

After the total weighted percent was calculated for each school (the highest possible score was 150), scores were assigned according to the scale shown in Figure 3.

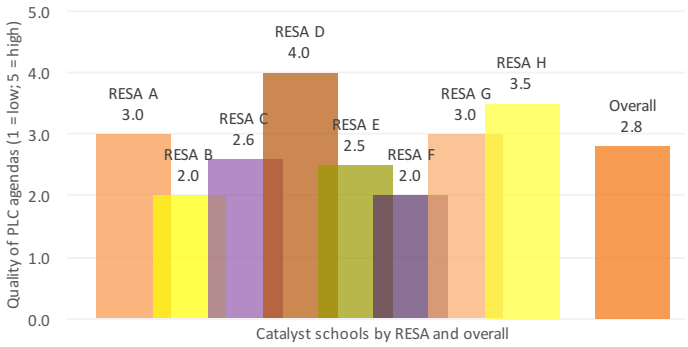

Figure 3. Mean Rating for Quality of PLC Agenda Topics by RESA and Overall

Data source: PLC agendas provided by catalyst schools for the month of February 2016. Scale: 5 = at least 90% of items focused on professional learning and planning with strong emphasis on professional learning; 4 = at least 90% of items focused on professional learning and planning with emphasis on planning; 3 = at least 70% of items focused on professional learning and planning with emphasis on planning and many items focused on administrative tasks; 2 = about 60% or less of items focused on professional learning and planning combined; 1 = nearly all items focused on administrative tasks.

As we have seen in other measures, RESAs varied considerably in terms of the quality of agenda topics included in their catalyst school PLC agendas. Overall, though, catalyst schools were at the middle of the 5-point scale, indicating that their agendas tended to focus mostly on planning, with a secondary focus on professional learning, and as much as 30% of their agendas taken up with administrative items.

Focus on Standards for Professional Learning

Two sets of data were collected to capture the extent to which catalyst school teachers and principals were focused on all seven of the Standards for Professional Learning at the catalysts schools. Described first are the results of a survey of teachers and second, the results of focus groups conducted with principals.

Alignment with Standards for Professional Learning

The SAI2, a valid and reliable instrument developed by Learning Forward, provides a measure of the extent to which professional learning practices in catalyst schools aligned with the Standards for Professional Learning. Only 10 of the 28 catalyst schools took the SAI2 in spring 2016 with a sufficient level of participation to measure the extent to which their professional learning practices aligned with the Standards for Professional Learning. Each standard receives a score on a scale of 1 (low) to 5 (high). For the purposes of this study, an average composite score was calculated for each of the 10 schools. Results aggregated at the RESA level and across the state are shown in Figure 4. With nearly two thirds of the schools not participating in the SAI2, three RESAs did not have results that could be shown here. It would be reasonable to speculate that schools choosing to participate were also otherwise strongly engaged in the Learning School implementation process; accordingly their scores may not be representative of catalyst schools overall or within their RESAs. The low level of catalyst school participation in the spring 2016 administration of the SAI2 may also be indicative of not having had the opportunity to experience the benefits of using the SAI2 results from the spring 2015 administration of the survey. At that time all five Cohort 1 schools took the survey and 20 of the 23 Cohort 2 schools also took the survey. The Cohort 2 schools were shown their results at the orientation sessions in July 2015. However, several catalyst school principals mentioned have difficulty accessing their results after the orientation, and only a small minority reported using their SAI2 results in their planning during focus group interviews, even when specifically asked about it.

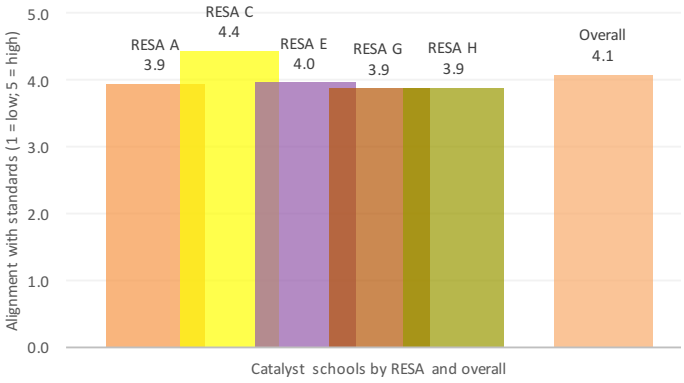

Figure 4. Alignment With Standards: Mean Catalyst Schools SAI2 Score (All Seven Standards) by RESA and Overall

Data source: Learning Forward's SAI2 online survey results for 10 catalyst schools. Scale: 1 = low level of alignment; 5 = high level of alignment.

This result among catalyst schools may sound a cautionary note about the importance of working with the schools just beginning to engage with the Learning School approach as part of the statewide expansion of the program. Several hundred schools have requested participation in the SAI2 in advance of the 2016-2017 school year; it will be important to make sure they are able to readily access the data and that they experience the usefulness of the data in their planning for 2016-2017. Lacking that kind of support, they may be reluctant to use the survey again during subsequent years, as were about two thirds of the catalyst schools.

Focus Group Interviews with Catalyst School Principals

Catalyst school principals participated in focus group interviews in late 2015/early 2016, during which they were asked a variety of questions, one of which focused specifically on the Standards for Professional Learning. They were given a list of the seven standards and asked to describe any activities in their schools that were intended to implement individual standards. Responses varied greatly across the RESAs, but overall results are shown in Figure 5. Perhaps not surprisingly for interviews with principals, *leadership* was the standard mentioned most frequently (19.1%), followed by *learning designs* (17.4%), and *outcomes* (17.4%). The leadership standard includes developing leadership capacity among teachers, advocating for professional learning, and creating systems and structures (e.g., schedules and calendars) to support teacher learning. Catalyst school principals' focus on learning designs includes aligning professional learning with teacher experience/needs, using a variety of forms (e.g. book studies, active research), and using peer observation. The principals also talked frequently about such student outcome-related issues as focusing on curriculum and how students learn, building on previous teacher learning, and explicitly linking educator and student learning. These appear to be important strengths among catalyst schools, according to their principals.

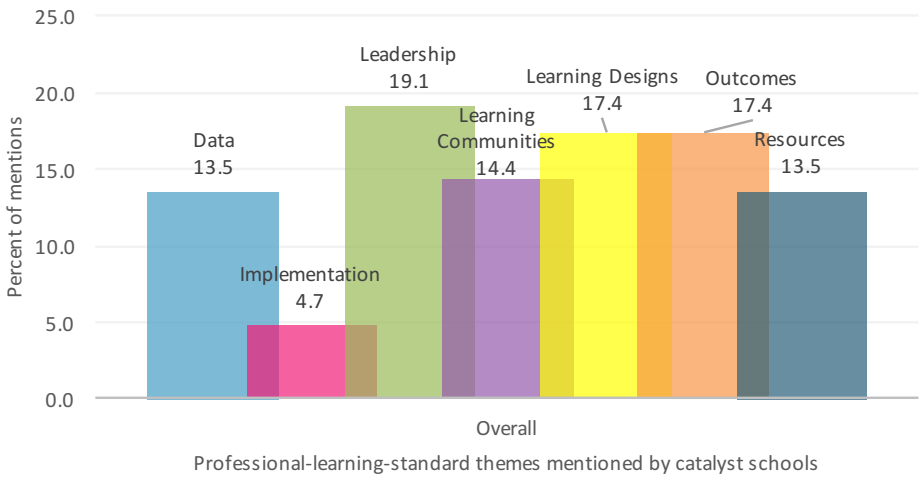

Figure 5. Catalyst School Principals' Mentions of Individual Professional Learning Standards as Percentage of Their Total Mentions of Standards During Focus Groups

Data Source: Eight focus group interviews conducted with catalyst school principals during late 2015/early 2016.

On the other hand, mentions of the standard, *implementation,* lagged far behind the other standards (4.7% of all mentions of standards). This standard includes activities such as applying research on change, sustaining support for long-term change, and providing constructive feedback. Tied for second lowest were two standards (13.5%): *data* and *resources*. The low percentage of mentions of the use of data may seem surprising; however the Standards for Professional Learning extend beyond using formal and informal student assessment data—which were often mentioned—to other sources of data such as educator data (e.g., educator evaluations, SAI2) and system data (e.g., OEPA, early warning, school climate, fiscal). A focus on resources would include such things as open discussions of expenditures for professional learning, allocating time for professional learning during the school day, and providing technology and other professional learning resources.

These findings point to some areas where catalyst schools could benefit from additional capacity building and where RESAs and others may need to focus as the WVBE's Learning School initiative moves forward.

Stage of Implementation Scores

According to the implementation science literature, initiatives pass through a progression of stages as described below:[4]

Stage 1 = **Exploration**—identifying the need, acquiring information, assessing the fit between the need and intervention program, and preparing the organization by mobilizing information and support

Stage 2 = **Installation**—making preparations, such as human resource strategies (e.g., scheduling time), policy development, reporting frameworks, outcome expectations, staff training, and needed technology/resources

Stage 3 = **Initial implementation**—beginning to use and monitor new practices, developing and applying new skills, creating a supportive organizational culture, and overcoming inertia and resistance

Stage 4 = **Full implementation**—proceeding with innovation as accepted practice and routine, and seeing evidence of expected impacts/improvements

Stage 5 = **Sustainability**—maintaining the effectiveness of the innovation as staff come and go and other changes take place in the organization and its environment

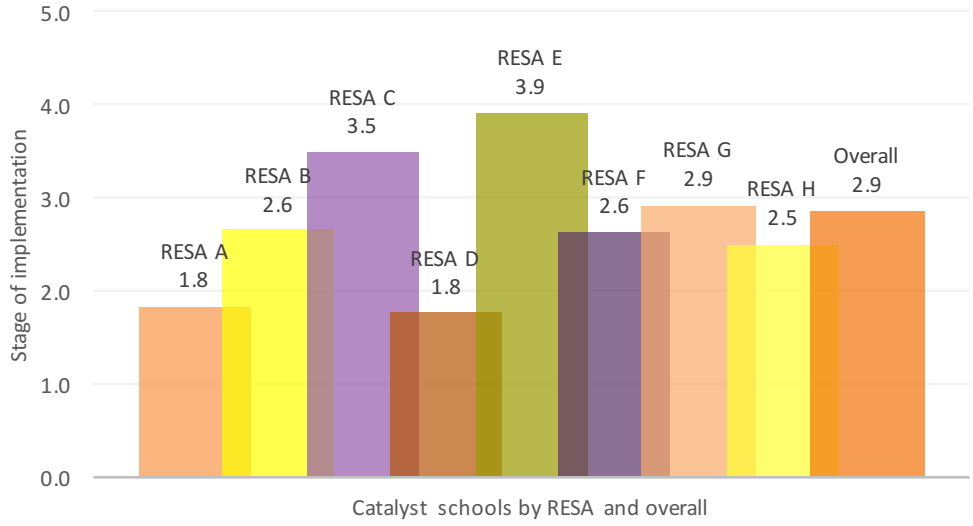

Figure 6. Mean Stage of Implementation for Catalyst Schools Overall and by RESA

Data source: Aggregate stages implementation, assessed by two individuals for each of 28 catalyst schools, one from WVDE and one from the associated RESA. Scale: 1 = exploration; 2 = installation; 3 = initial implementation; 4 = full implementation; 5 = sustainability.

One WVDE staff member and one RESA staff member independently assigned scores to each of the 28 catalyst schools for the stage each school had reached in its implementation of the Learning School approach. The individuals assigning the scores had firsthand familiarity with the schools to which they assigned ratings. As shown in Figure 6, catalyst schools have been assessed overall as approaching the initial implementation stage. However, this figure also shows great variability among the RESAs, with schools in two RESAs rated as still in the first stage of implementation (exploration) and schools in two other RESAs well into the initial implementation stage–in one case approaching full implementation of the Learning School approach in their catalyst schools.

Composite Scores: Mean of all Previous Scale Scores

Composite ratings for individual catalyst schools were calculated by taking the average of the scale scores described previously for PLC time in schedules, PLC agenda quality, SAI2 standards alignment, and stages of implementation. Schools for which at least three of four ratings were available were included in the aggregated information shown in Figure 7. This figure provides a portrayal of the level of implementation in catalyst schools across West Virginia. The two RESAs with the highest scores are spotlighted in the second and third reports in this series.[5]

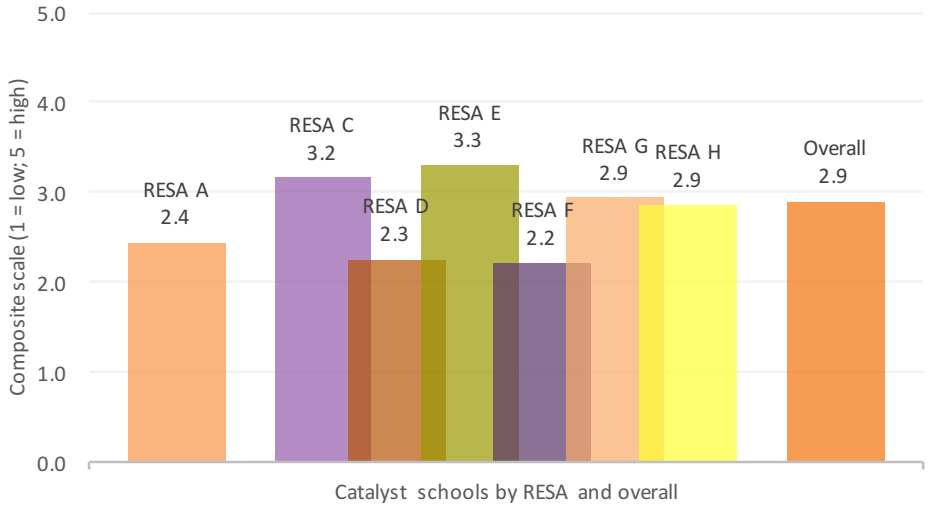

Figure 7. Composite Level of Implementation Ratings by RESA and Overall

Data sources: Aggregate mean ratings for (a) amount of time scheduled for PLCs; (b) mean rating for quality of PLC agenda topics; (c) mean SAI2 Scores (all seven standards); and (d) mean stage of implementation for catalyst schools—calculated by RESA and overall.
Scale: 1 = low level of implementation; 3 = moderate level of implementation; 5 = high level of implementation.

Discussion

Time for Professional Learning

Overall, catalyst schools were scheduling far less embedded learning time for their PLCs--on average, 90 - 179 minutes a month--than 720 minutes called for in research. According to Learning Forward, "Dedicated job-embedded learning time elevates the importance of continuous, careerlong learning as a professional responsibility of all educators and aligns the focus of their learning to the identified needs of students they serve."[6] Not only is such scheduled time better aligned with teachers' and students' learning needs, it can also be an efficient use of funding: "Including substantive time for professional learning, 15% or more, within the workday shifts some costs for external professional learning to support job-embedded professional learning."[7] Following this recommendation would require scheduling more than 1 hour a day for professional learning. High-performing companies also understand the need for substantial investments in professional learning. Randy Nelson of Pixar reports, "Every employee is encouraged to devote up to four hours a week, every week, to his or her education."[8]

How PLC Time is Used

School-based PLCs were seen by Cobb and Jackson in a 2011 report[9] as a key element in an overall instructional system leading to continuous improvement of student learning. According to these researchers, a well-functioning PLC can play a crucial role in school-based professional learning, providing opportunities for teachers to collaborate in addressing problems, to integrate ideas and tools introduced in district-based professional development, and to rehearse practices. They noted that PLCs work best when they have good leaders, who set agendas, facilitate activities, and practice professional routines for interaction. Further, for PLCs to have an impact on professional growth requires that teachers deprivatize their practice—that is, that they willingly discuss problems they encounter in practice, especially in their efforts to implement new instructional approaches.

Just having a PLC, however, does not guarantee improved teacher practice and student learning.[10] The possible lack of effectiveness may be especially true for schools that need change the most, as staff may have difficulty recognizing their need for knowledge beyond what they have available among their own faculty members. As noted in one recent study, "Local knowledge is immediate and concrete but almost always incomplete and sometimes blind and insular."[11]

Further, PLCs face other potential pitfalls. A recent blogpost by Learning Forward researcher Joellen Killion summarized findings from a study by the Rennie Center for Education Research & Policy:

> *Professional learning communities (PLCs) are hijacked in multiple ways, usually under the pretense of facilitating or supporting . . . collaboration. Administrators who dictate the content of collaboration are some of the biggest offenders. Teachers who fail to engage responsibly as professionals with colleagues in collaboration are also offenders. When educators at any level arrive late, break commitments, seek to maintain the status quo, or remain within their comfort zone, they are subverting the core principles of professional learning communities.*[12]

There also seems to be confusion about what PLCs actually are. Killion further explains that the term is often used for any meeting of education professionals, "Grade-level team or department meetings, faculty meetings, convocations, training, data presentations, curriculum writing, assessment scoring, or lesson planning are often mistakenly called PLCs."[13]

An analysis of the items included on West Virginia catalyst school PLC agendas revealed that in most cases professional learning was taking a back seat to planning for learning, especially planning for student learning. Even the number of administrative items on agendas had a slight edge on professional learning items. The number of items is not, necessarily, a measure of the amount of time being spent, but does point to the possible need to take a closer look at how much of the time available for PLCs is being spent on professional learning activities.

Focus on All Seven Standards for Professional Learning

Seven standards for professional learning frame the Learning School approach. These standards were adopted by the WVBE in 2012 and form the basis of Board Policy 5500, which paraphrases them as follows:

[P]rofessional learning that increases educator effectiveness and results for all students—

- Occurs within **learning communities** committed to continuous improvement, collective responsibility, and goal alignment.
- Requires skillful **leadership** to develop capacity, advocate, and create support systems for professional learning.
- Requires prioritizing, monitoring, and coordinating **resources** for educator learning.
- Uses a variety of sources and types of student, educator, and system **data** to plan, assess, and evaluate professional learning.
- Integrates theories, research, and models of human learning into **learning designs** to achieve its intended outcomes.
- Applies research on change and sustains support for **implementation** of professional learning for long-term change.
- Aligns its **outcomes** with educator performance and student curriculum standards.

The best measure of how well aligned schools are with the Standards for Professional Learning is the SAI2. Faculty at 10 catalyst schools took the survey in the spring of 2016 and scored high, with mean scores across all seven standards ranging from 3.9 to 4.4 (by RESA region) on a 5-point scale. It is notable that six of the 10 schools that took the survey were located in the two highest performing RESAs in the composite analysis shown in Figure 7. The highest scores for the seven standards among the 10 schools were for *leadership* (4.4) and *outcomes* (4.3); lowest were *learning designs* (3.8)*, resources* (3.9)*,* and *data* (3.9).

Although a much less precise measure, the focus groups with principals conducted at all eight RESAs did have the advantage of including principals and/or assistant principals from nearly all catalyst schools. An analysis of the recorded interviews affirmed what the SAI2 showed about schools' focus on *leadership* and *outcomes*, and a comparative lack of focus on *data* and *resources*. *Implementation*, however, was the least-mentioned of the seven standards among this group of principals. The low rate of mentions of *data* was due to the nearly singular focus on formal and informal student assessment data, with little or no mention of data such as educator evaluation, early warning, and other available data sources.

One last note about the standards: While a small minority of principals talked in the focus groups about the relationship between the Standards for Professional Learning and the High Quality Schools Standards—the latter being the standards used by OEPA in their performance audits—most seemed to view the two sets of standards as separate in the sense that focusing on the Standards for Professional Learning would not, necessarily, be helpful in meeting the standards used by OEPA. It will be important for catalyst and other schools to have clarity about how the two sets of standards relate to one other without conflating them by suggesting that if you do an effective job of addressing the one set—that is, the High Quality Schools Standards—you will have adequately addressed both sets.

Stages of Implementation

Perhaps the most notable finding from the WVDE and RESA stage of implementation ratings was the tremendous range seen across the RESAs. The two leading RESAs, whose schools are approaching full implementation are, according to the WVDE and RESA observers, a full stage or more ahead of schools in most of the other regions. The composite ratings showed a little less spread in the range of schools across RESAs, but also indicated a full point difference on a 5-point scale between the highest and lowest sets of schools by RESA.

Recommendations

Based on the findings from this study about implementation of the Learning School approach in the West Virginia catalyst schools, the following four recommendations seem warranted:

1. Provide technical assistance and other resources to aid schools in creating schedules with ample time built into their schedules for professional learning--at least 45 or more minutes four times a week.
2. Provide tools and guidance on how to analyze the activities of PLCs, and make sure that these meetings of collaborative learning teams during the school day and week include professional learning as their primary focus. The professional learning should draw upon the expertise and experience of faculty in the individual schools and districts, and also upon outside expertise that can be accessed through a variety of professional learning experiences, including face-to-face training, online courses, webinars, action research, book studies, and other learning designs.
3. Encourage all schools to take the SAI2, help them interpret the results for all seven of the Standards for Professional Learning, and translate their results into action plans that build on their areas of strength, while addressing the standards in greatest need of improvement.
4. Provide schools with a crosswalk of the Standards for Professional Learning and the High Quality Schools Standards, and through guidance and discussion help schools discern both the relationships and differences among these two sets of standards.

Notes

1 Learning Forward. (2011). Standards for professional learning. Oxford, OH: Author, p. 33.

2 Learning Forward, Standards for professional learning, p. 33.

3 Some catalyst schools reported weather-related cancellations of February PLCs, so they sent late January and early March agendas. Agendas from outside of this narrow window were not included in the analysis.

4 Adapted from Fixsen, D. L., Naoom, S. F., Blase, K. A., Friedman, R. M. & Wallace, F. (2005). Implementation research: a synthesis of the literature. Tampa, FL: University of South Florida, Louis de la Parte Florida Mental Health Institute, The National Implementation Research Network (FMHI Publication #231). Retrieved from http://ctndisseminationlibrary.org/PDF/nirnmonograph.pdf.

5 See the following two reports from this series: Hammer, P. C. (2016). *Catalyst school research study report: Spotlight on RESA 2—Regional implementation of the Learning School initiative*. Charleston, WV: West Virginia Department of Education, Office of Research, Accountability, and Data Governance.

See also, Hammer, P. C. (2016). *Catalyst school research study report: Spotlight on RESA 6—Regional implementation of the Learning School initiative*. Charleston, WV: West Virginia Department of Education, Office of Research, Accountability, and Data Governance.

6 Learning Forward, *Standards for professional learning*, p. 33.

7 Learning Forward, *Standards for professional learning*, p. 33.

8 Learning Forward, *Standards for professional learning*, p. 33.

9 See Cobb, P. & Jackson, K. (2011). Towards an empirically grounded theory of action for improving the quality of mathematics teaching at scale. *Mathematics Teacher Education & Development, 13*(2), 6-33.

10 See Bausmith, J. M. & Barry, C. (2011). Revisiting professional learning communities to in-crease college readiness: The importance of pedagogical content knowledge. *Educational Researcher, 40*, 175-178; Saunders, W., Goldenberg, C., & Gallimore, R. (2009). Increasing achievement by focusing grade-level teams on improving classroom learning: A prospective, quasi-experimental study of Title I schools. *American Educational Research Journal, 46* (4), 1006-1033.

11 Hiebert, J., Gallimore, R., & Stigler, J. (2002). A knowledge base for the teaching profession: What would it look like and how can we get one? *Educational Researcher, 31*(5), 3-15, see p. 8.

12 Killion, J. (2014). 3 Principles for Authentic PLCs. Learning Forward's PD Watch: Professional Learning for Student Success. (Blogpost, May 15, 2014) Retrieved from *http://blogs.edweek.org/edweek/learning_forwards_pd_watch /2014/05/3_principles_for_authentic_plcs.html?r=382121938*; Poulos, J., Culbertson, N., Piazza, P., & d'Entremont, C. (2013). *Making space: The value of teacher collaboration.* Boston, MA: Rennie Center for Education Research & Policy. Retrieved from *http://www.edvestors.org/wp-content/uploads/2014/04/EdVestors-Making-Space-The-Value-of-Teacher-Collaboration-2014.pdf*.

13 Killion, 3 Principles for Authentic PLCs.

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State Superintendent of Schools