EXECUTIVE SUMMARY

Collaborative Lesson Studies

Powerful Professional Learning for Implementing the Next Generation Science Standards

NGSS EARLY IMPLEMENTERS
WestEd

NGSS Early Implementers Initiative: Bringing science to life as a core subject in K–8 classrooms

A diverse group of eight California school districts and two charter management organizations is actively implementing Next Generation Science Standards in grades K–8. These NGSS Early Implementers are supported by the K–12 Alliance at WestEd, and work in partnership with the California Department of Education, the California State Board of Education, and Achieve. The S. D. Bechtel, Jr. Foundation commissions WestEd's STEM Evaluation Unit independently of the K–12 Alliance to evaluate the Initiative in the eight public school districts. This document summarizes the content and findings of the eighth evaluation report in the Initiative series, published in September 2019. Access the complete series and learn more at K12alliance.org.

Collaborative Lesson Studies

This evaluation report describes a central professional learning strategy that the California NGSS Early Implementers Initiative used to help teachers effectively transition to the Next Generation Science Standards (NGSS). The Initiative's approach to lesson study, called a Teaching Learning Collaborative (TLC), brings together teams of teachers who collaboratively plan, teach, critique, and then re-teach NGSS lessons. Trained facilitators ensure that participants feel professionally safe and supported to experiment with the substantial and sometimes daunting instructional shifts required by the NGSS. The especially strong emphasis on active collaboration is why the Initiative uses the term "TLC" rather than the more general, commonly used term "lesson studies."

Initiative leaders chose to focus heavily on TLCs because, while teacher professional learning often takes place outside of the classroom, TLCs, like all lesson studies, provide true hands-on learning in a classroom setting where teachers can grapple with authentic instructional issues.

All NGSS Early Implementer districts followed the same TLC model during Years 1 through 4 of the Initiative. In Year 5, when grant funding began to scale back and professional learning became less centralized, districts made a variety of modifications to TLCs to meet their local needs and circumstances. This report describes:

- The original TLC model used Initiative-wide in Years 1–4, and its benefits
- District modifications to TLCs in Year 5
- Feedback from participants about what was gained and lost through those modifications
- Recommendations for using TLCs as NGSS professional learning

Like the entire evaluation series for the NGSS Early Implementers Initiative, this report aims to provide useful information to school and district administrators, leaders of science professional learning, and state policymakers. The report is based on an extensive amount of data: evaluators' observation of 27 TLCs; responses from a dozen surveys; and over 100 interviews with teachers, administrators, district Project Directors, and K–12 Alliance Regional Directors.

TLCs In Practice

The TLCs of Years 1 to 4

Every fall and spring during the first four years of the Initiative, TLC teams of three to four grade-level teachers, drawn from different schools in their districts, convened for a lesson planning day and then, one to three weeks later, a teaching day. During the planning day, a facilitator led the team through a process of developing a lesson to be collaboratively taught by the team during a single class period. During the teaching day, the team co-taught the lesson to students and immediately afterward examined student work to debrief the lesson's effectiveness in advancing student understanding. The team then made revisions to improve the lesson, taught it to another class, and held a final debrief that included sharing what they each had learned and would take back to their classrooms. The report includes a detailed vignette of the full planning and teaching days of a grade 6 TLC observed by an evaluator.

Benefits of the Early Implementer TLCs

Evaluation data show that the TLC experience accelerated teachers' enactment of the pedagogical shifts required by the NGSS. More specifically, the TLCs:

- Powerfully engaged teachers in learning, motivating them to want to implement instruction aligned with NGSS
- Gave teachers detailed, grounded insights into what the NGSS standards are — and what it means to implement instruction aligned with these standards
- Enhanced the culture of teaching, learning, and collaboration in school sites and districts

About 80 percent of teachers reported that TLCs deepened their understanding of each of the following core aspects of NGSS "a lot" or "moderately": science disciplinary core ideas (DCIs), science and engineering practices (SEPs), crosscutting concepts (CCCs), and how to use these three dimensions to help students understand a phenomenon. Further, TLCs also helped the many administrators who took advantage of an open invitation to observe. For example, when asked in a survey, "During the 2017–18 school year, how much of an impact did the following have on your understanding of NGSS?" 41 percent of principals reported that observing a TLC teaching day had "A great deal" of impact, and 32 percent said it had "Some" impact.

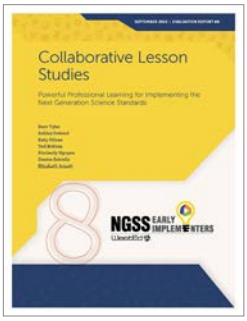
Modified TLCs in Year 5

The largest section of the report presents the variety of modifications made by districts to TLCs when Early Implementer grant funding decreased (per the Initiative budget schedule) in Year 5. In most districts, there was a need to reduce release time for teachers and reliance on substitutes. Further, districts in Year 5 aimed to expand professional learning to a much larger number of teachers.

All districts retained certain features of the original TLC: a facilitator to shepherd the teams through the TLC process; an emphasis on collaboration and support; and some version of planning, teaching, and debriefing. In all districts, reviewing student work was central to the debrief discussion. Some facilitators provided lessons to the TLC teams or brought suggestions for phenomena or lessons in order to reduce planning time. Most teachers taught the lessons on their own with their own students, bringing student work to the debrief sessions. None of the districts conducted TLCs exactly as they had in Years 1 through 4. According to feedback, the biggest loss in Year 5 was the co-teaching element of the original TLC since it was such a rich learning opportunity. A vignette in the report illustrates one district's use of the TLC to support both NGSS implementation and integration of science and ELA in Year 5.

Lessons Learned

- The steep learning curve to understand and teach the NGSS as intended necessitates intensive professional learning opportunities for teachers, such as the TLCs.
- While TLCs are costly and time-intensive, the needs they meet and the benefits they deliver are high — that is, they require investment that pays dividends.
- Because the instructional changes called for by NGGSS can be intimidating (particularly for elementary teachers), strong attention must be paid to the need for a collaborative and non-judgmental space for teachers to try new things.
- The real payoff of bringing teachers together for lesson planning will not happen unless participants also come together to teach, then debrief, the lessons.
- With new instructional materials for science available for adoption it may be tempting to assume that the need for professional learning is reduced, but administrators and teachers should not expect new curricula to stand in for professional learning.



Read the full report, access other evaluation reports and resources, and learn from NGSS Early Implementers at K12alliance.org.