



What Education Leaders Can Learn About NGSS Implementation: Highlights From the Early Implementers Initiative

EXECUTIVE SUMMARY

From 2014 through 2020, eight diverse school districts and two charter management organizations ran a substantial experiment with ways of implementing the Next Generation Science Standards (NGSS) in elementary and middle grades, called the California K–8 NGSS Early Implementers Initiative. The Initiative certainly illustrated that a big financial investment can produce powerful change. However, even districts facing resource challenges may benefit from the lessons that were learned and the strategies that were developed by the Initiative.

An external evaluation team has previously released a series of reports on what can be learned from the efforts of the Initiative districts. All reports are intended to be helpful to administrators at the school and district levels, education policymakers, and people charged with designing and/or delivering science professional learning.

This document summarizes the high-level, major learnings that are in the 14th evaluation report, the final report in the Initiative series, published in November 2020. Access the complete series and learn more at [K12alliance.org](https://www.k12alliance.org).

NGSS Instruction Is a Powerful Lever for Equitable Learning

As the NGSS are implemented, children's science learning often becomes more powerful, exciting, and equitable. Indeed, Early Implementer teachers and administrators reported that NGSS instruction strongly addressed all students, including English learners and students with special needs, in the following ways:

- NGSS teaching was more accessible for all students.

- More students were more engaged.
- Student learning was deeper.
- Science learning compellingly contributed to language development.

Evaluators found from surveys that more than 90 percent of both teachers and principals indicated that NGSS-recommended, phenomena-based instruction was having a positive effect on low-performing students' learning. Further, one-third of teachers and administrators (36 and 34 percent, respectively) perceived a "substantial" change. A District Project Director remarked: "When the vision of the NGSS is at play in learning experiences, students tend to be so engaged, they don't really 'realize' they are reading, writing, engaging in mathematics, or developing rich vocabulary."

How the Initiative Made This Kind of Instruction Happen

Initiative leaders used a comprehensive implementation design that promoted buy-in by all critical stakeholder groups. Because the teaching shifts called for by the NGSS are substantial and could overwhelm teachers, the Initiative used these **implementation strategies**: start small and expand, start slow to go fast, cultivate support at all levels of the district, and prioritize science.

The Initiative emphasized substantial, experiential **professional learning** in which teachers, like students, learned the NGSS by doing science investigations. Similarly, teachers developed implementation leadership by being immersed in fulfilling leadership opportunities, with support; leadership development included learning how to be a change agent. At the end of the Initiative, 81 percent of Teacher Leaders said that they "thoroughly" or "fairly well" understood how to help other teachers transition to the NGSS.

Ambitious Professional Learning for Administrators Paid Off

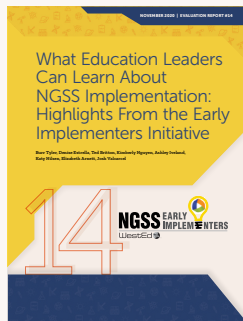
The Initiative discovered early on that NGSS implementation efforts hinged on administrator support. Teachers looked to administrators for explicit permission to experiment in the classroom, time for planning and collaboration, access to professional learning, funding for substitute teachers, and adequate supplies for science investigations. Over the years, the Initiative increased the amounts and kinds of professional learning and support for administrators. By 2020, two-thirds (67 percent) of all K–8 science teachers in the participating districts reported that their principal was very supportive of them teaching the NGSS in their classroom, and only 5 percent of teachers identified "lack of support from administrators" as one of their three biggest barriers to implementing the NGSS.

Although getting the attention of administrators was challenging at first, over time, the Initiative leaders became increasingly aware that the more these administrators learned about NGSS instruction and its impact on students, the more supportive of the NGSS they became. Some of the Initiative's first offerings for administrators were extensive but relatively conventional and did not produce as widespread or deep administrator participation and resulting support as had been hoped. In later years, two strategies that districts found to be more effective were working one-on-one with principals to experience science walk-throughs and locally running a professional learning academy for administrators and district specialists. Some administrators remarked that they regarded the Initiative's approach to involving administrators as a model for efforts to implement standards in other school subjects.

Challenges and Recommendations

The report also discusses **challenges** that NGSS implementations often had to overcome, including the typically low status of science in schools, elementary teachers lacking confidence to teach science, reorganized and sometimes unfamiliar science content for middle school teachers, and funding. The last section of the report advances

short **recommendations** for policymakers and administrators in implementing the NGSS, including keeping the NGSS on the radar, even during the COVID-19 pandemic; making science a priority in the elementary grades; pursuing synergies of science with other school subjects; and shifting from promoting only awareness among administrators to engaging them more fully and providing them with professional learning.



Read the full report, access other evaluation reports and resources, and learn from NGSS Early Implementers at [K12alliance.org](https://www.k12alliance.org).