The STeLLA® Effect

BSCS Science Learning has developed a nationally-recognized program for teacher learning called STeLLA, Science Teachers Learning from Lesson Analysis. K–12 science teachers who want to implement research-based curriculum, improve their teaching, or navigate next generation science all have something to gain from this proven program. And so do their students.

STeLLA is based on a 17-year line of research and development. Today, we are transforming research into practice by introducing broadly accessible versions of the program.

Interested? Learn more!

Our STeLLA Story

Nearly two decades ago, BSCS researchers and educators observed a persistent issue in science education. Students were not developing the scientific understanding they needed to make sense of our complex world. This was true even when teachers engaged students in the kinds of experiments and hands-on activities that experts recommended.

Where was the disconnect? And what needed to change?

Inspired by this challenge, we set out to create a new approach for educating teachers. We believed that learning to use effective teaching strategies through video-based lesson analysis could transform science teaching and student achievement in science. The resulting STeLLA approach was promising from the start and is nationally-recognized today.

Over the last 17 years, STeLLA has demonstrated impacts on both teacher and student learning above and beyond any

impacts from a traditional science teacher professional learning program.

STeLLA produces impressive outcomes and works across contexts. It has proven effective in both preservice and inservice programs; in district-wide programs and in programs enrolling individual teachers; in programs for elementary, middle, and high school teachers; and in programs facilitated in person and online.

Today, we are doing everything we can to bring STeLLA to K-12 science educators across the country.
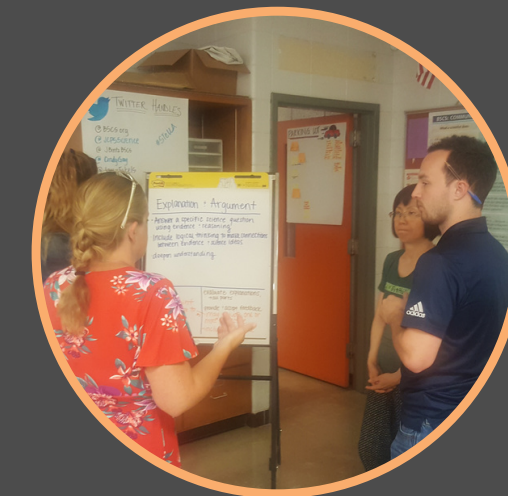
How STeLLA Works

STeLLA helps teachers motivate students to learn science. Specifically, it supports teachers in learning to use effective teaching strategies through a powerful video-based lesson analysis approach. Strategies include engaging student thinking and organizing instruction in a way that connects science ideas. Teachers learn to use these strategies by analyzing classroom videos, and sharing their thinking in facilitated sessions with other teachers. The STeLLA program takes place in-person, online, or in a hybrid format over the course of one school year (typically 90 hours), during which teachers apply what they're learning in their own classrooms.

THE STeLLA HYPOTHESIS:
Professional development on high-leverage teaching strategies through video-based lesson analysis can transform teaching and student learning.

STeLLA:
Science Teachers Learning from Lesson Analysis

RESULTS:
STeLLA has demonstrated impacts on both teacher and student learning above and beyond any impacts from a traditional science professional development program.

IMPLEMENTED ACROSS CONTEXTS:
Elementary and secondary schools with in-person and online delivery.

TESTED:
10 research studies across the United States.

Learn more at bscs.org/STeLLA

Research Highlights

While most studies of teacher professional learning only show effects on the participating teachers, studies of STeLLA show major impacts on both teachers and students. The STeLLA Colorado (STeLLA CO) research study is a good example.

STeLLA CO was a randomized-controlled study, conducted with 144 teachers and more than 2,800 students from 16 districts. The study compared elementary teachers randomly assigned to either the STeLLA program or a more traditional professional learning program focused on improving science content knowledge.

The results were compelling. Both STeLLA teachers *and* their students scored higher on tests of science content knowledge. The difference was equivalent to students with teachers in STeLLA being over a year ahead in science, compared with students of teachers in the traditional program.

Check out the STeLLA line of research at-a-glance **HERE**.

Student Science Scores by Treatment Group

error bars +/- 1 SE
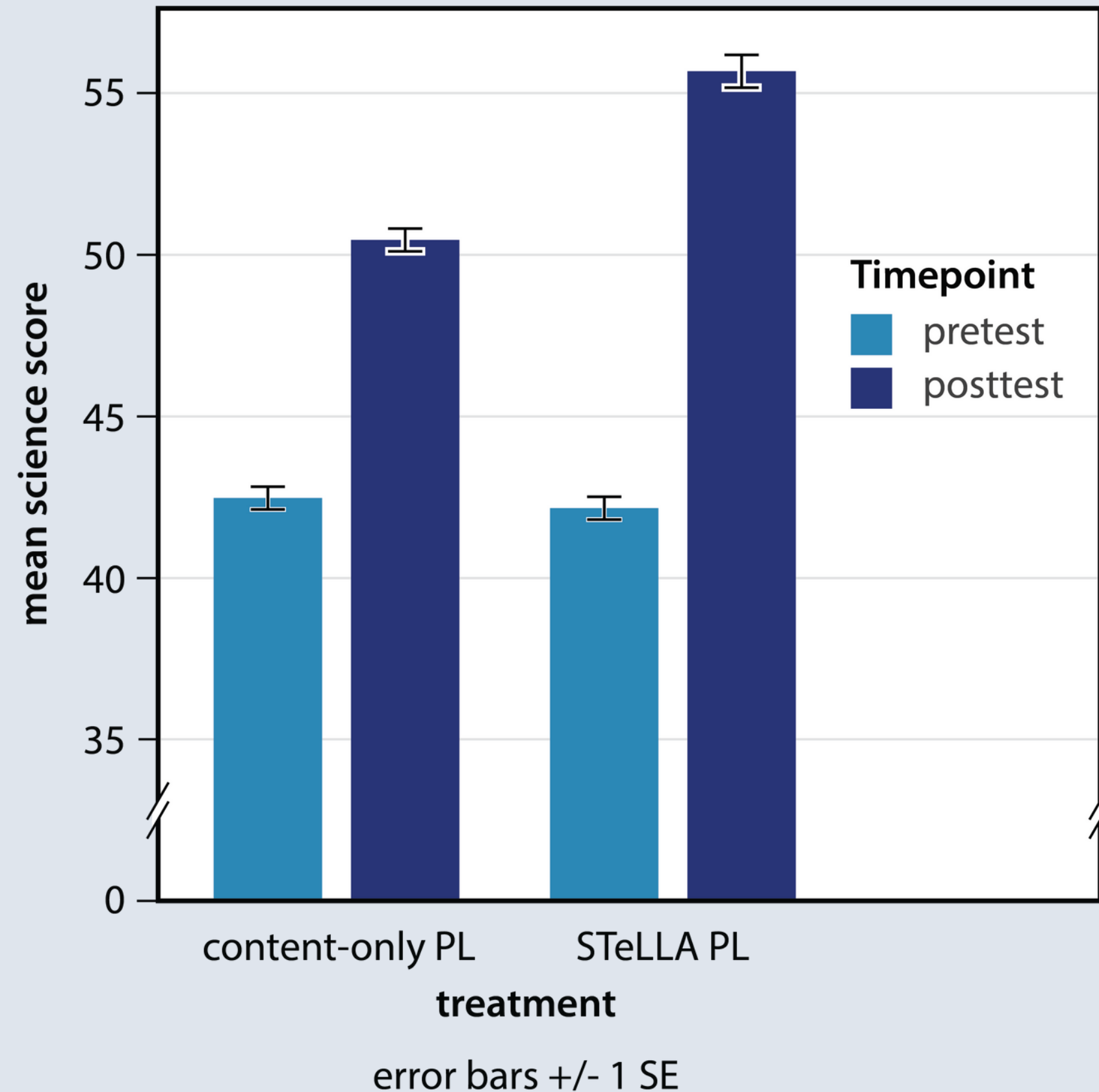
This graph shows a substantial difference between students whose teachers were in the STeLLA program and students whose teachers were in the traditional program. The difference in scores was equivalent to 23 percentile points, meaning the score of a student in the 50th percentile of the STeLLA group would put that student in the 73rd percentile of the traditional group.

What Teachers are Saying About STeLLA...

STeLLA has been a game changer. I have realized that I was a teacher who mainly focused on the correct response instead of understanding how students thought about ideas and how they connected the ideas to the main learning goal. I have a new perspective and I know that I can create a classroom environment of life-long scientists. I can now present science material in a conceptual way, instead of teaching for the state assessment test.

Eula Kador, elementary school teacher in Baton Rouge, Louisiana

STeLLA taught me the importance of asking good questions and knowing when to challenge my students without handing them the answers. I find that my students are much more engaged and interested in the material. The most tangible proof is the dramatic decrease in referrals I had to write this year. My students actually wanted to learn and stayed focused. STeLLA has given me so much confidence in myself as a teacher, and has given my students so much confidence in themselves. It helped me show them that everyone can be a scientist.

Samantha Wilson, high school teacher in Louisville, Kentucky

Check out the buzz on the power of STeLLA!

EdW

Read article

Participate in STeLLA Online

The STeLLA CO study was a resounding success. Both teacher and student learning improved significantly. Since then, we've designed and tested a fully online version of that program.

STeLLA is now available for fourth and fifth grade teachers in this convenient, accessible, and effective online format.

Interested? Secure your spot at bscs.org/stellaonline.

Why Sign Up?

- STeLLA builds a sense of community among educators.
- Participants will become more effective and confident science teachers.
- STeLLA significantly increases student achievement in science.
- STeLLA accelerates learning…which is especially valuable in a time when a lot of learning has been lost.
- The program is fully online, allowing teachers to participate from anywhere.

What's Required?

- A commitment of 90 hours spread across the summer and 2021-2022 school year.
- In the summer, participants must complete 10 online modules, containing asynchronous assignments and synchronous sessions held via Zoom.

In the fall semester 2021, participants must:
- teach 7 Earth's Changing Surface lessons provided by BSCS (each lesson is approximately 45 minutes in length),
- film themselves teaching one of the Earth's Changing Surface lessons, and
- participate in five 2-hour synchronous sessions held via zoom discussing their own video and the videos of their peers enrolled in the course.

In the spring semester 2022, participants must:
- teach 6 Water Cycle lessons with main learning goals and activities provided by BSCS,
- complete asynchronous assignments, and
- participate in six 2-hour synchronous sessions.

We're currently working to expand
STeLLA to different grade levels
and science disciplines.

Contact Amy Belcastro at
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for more information.

About BSCS Science Learning

BSCS Science Learning provides research-based science education programs and services. We have a 60-year track record of leveraging research to create practical solutions. Today we offer classroom-tested instructional materials and immersive professional learning and leadership development experiences that meet the needs of the diverse populations and educational contexts of 21st century America. Our staff includes experienced educators, educational researchers, and scientists who share a commitment to transforming science education. Learn more at **bscs.org**.

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