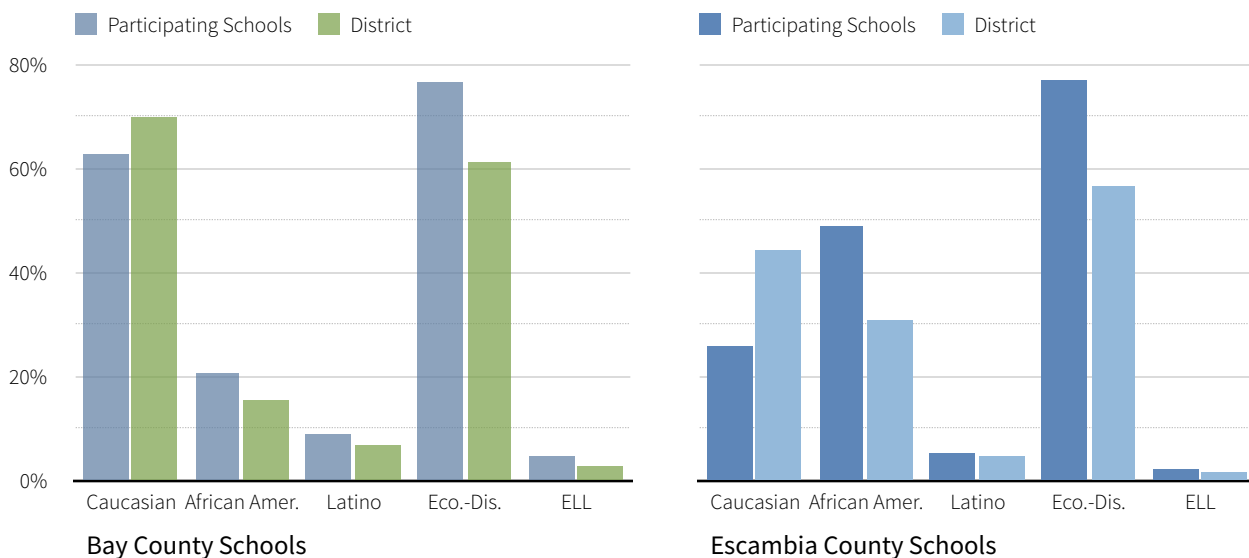


Supporting Teachers in Advancing STEM Practices Florida MSP Grant Study for 3rd-8th Grade Teacher Professional Development

Partnering with Bay and Escambia County Schools, Accelerate Learning conducted a year-long (2015-2016) initiative to improve 3rd-8th grade STEM teacher practices, as part of an MSP grant funded by the state of Florida. Participating teachers ($n = 44$) had access to the STEMscopes Florida curriculum, materials kits, and 60 hours of professional development (9 full-day trainings) aimed at improving science content knowledge and STEM instructional practices. Results show that participating teachers improved their STEM instructional practices and science content knowledge across the school year.

School District Demographics

District administrators selected schools and teachers to participate based on a variety of reasons, including the needs of the schools and the populations that they serve. Schools participating in this partnership had higher representation of minority students, economically-disadvantaged students, and English language learners than the district on average.

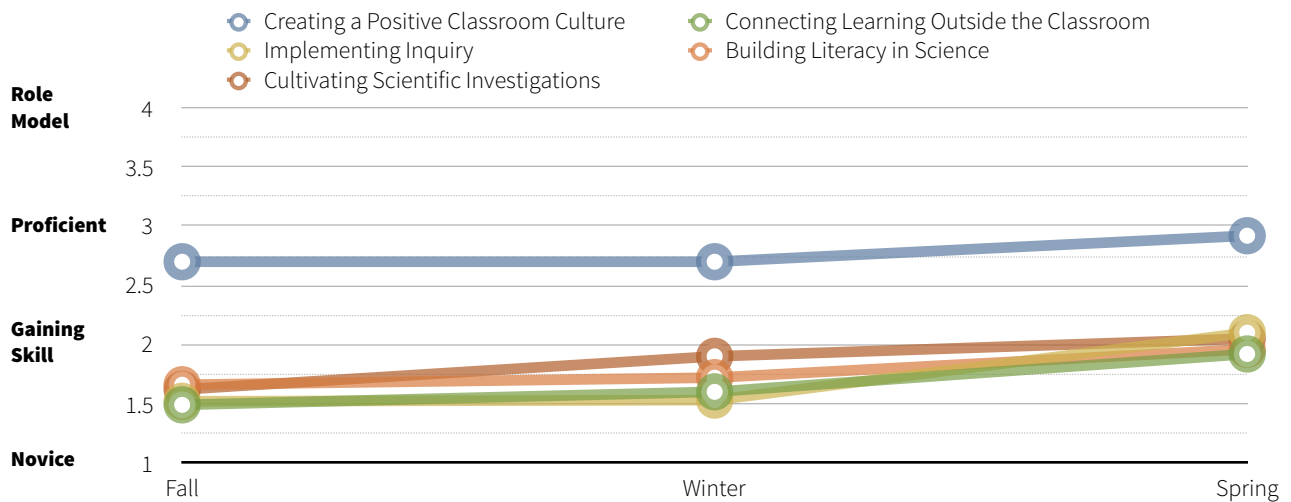


Method, Areas of STEM Teacher Professional Development, and Results

As part of the grant requirements, teachers were evaluated on their STEM instructional practices and science content knowledge throughout the school year. For STEM instructional practices, teachers were observed during fall, winter, and spring of the 2015-2016 academic year and assessed on a scale of 1-4 (novice to role model) on their execution of 15 research-based STEM teacher actions across 3 domains: Creating an Environment for Learning, Building Scientific Understanding, and Engaging Students in Scientific & Engineering Practices. It is important to note that teachers often spend many years developing these qualities—reaching “role model” (4) status takes a significant investment in personal and professional growth.

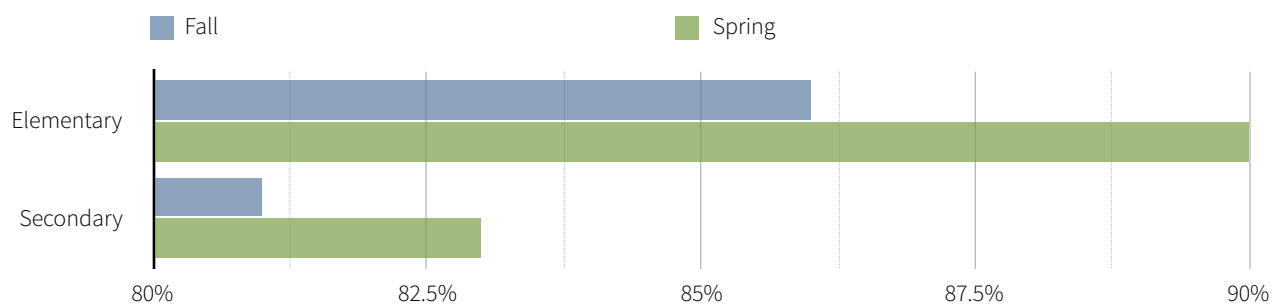
Repeated-measures ANOVAs were conducted to determine if teachers experienced significant growth in these skills across the school year. Of the 15 teacher actions evaluated, teachers significantly improved their scores on 5 of these actions. Specifically, teachers significantly improved their scores in the areas of Creating a Positive Classroom Culture, Connecting Learning Outside the Classroom, Implementing Inquiry, Building Literacy in Science, and Cultivating Scientific Investigation.

Average Proficiency Scores by Domain of All Participating Teachers across the 2015-2016 Academic Year



For teacher content knowledge, a fall and spring elementary/secondary science content competency assessment mirroring the Florida Statewide Science Assessment (SSA) was administered. Teachers increased their science content knowledge from the fall to the spring. Teachers improved in their content knowledge (elementary and secondary levels) across the academic year.

Average Teacher Content Knowledge Teacher Assessment Results



Conclusion

Overall, the Bay & Escambia STEM Targeted Partnership was successful in increasing teacher science content knowledge and the quality of STEM instructional practices during the same school year that they received the training and materials. It is expected that teachers will continue to improve in their STEM instructional practices as they master the content knowledge and pedagogy needed to create a high quality STEM classroom.