OutTeach

Go Outside Expectations

FY2023 IMPACT REPORT

December 2023

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MEASURE *BY DESIGN*

EXECUTIVE SUMMARY

Out Teach is a non-profit organization that promotes a love of science among students and empowers teachers to transform outdoor spaces into dynamic learning environments. **Out Teach demonstrated a significant impact during the 2022-2023 academic year**, serving 1,596 teachers and 39,900 students. The organization's work aligns with national data, emphasizing the need for targeted science-focused professional learning, especially in elementary education. This report, conducted by Measure by Design, a third-party evaluator, assesses the effectiveness of Out Teach's professional learning, coaching, outdoor classroom builds, and consultation services.

Key Findings

- **Out Teach served a diverse cohort of educators:** Over 65% of teachers served by Out Teach identified as Black or Latino.
- **Out Teach's professional learning and coaching positively impacted teaching practices:** Teachers experienced significant and moderate growth in one or more key science teaching practices.
- **Out Teach's professional learning and coaching positively impacted student learning:** Out Teach's job-embedded instructional coaching model improved science instruction for over 2,700 students.
- **Out Teach's Outdoor Classroom Team created tangible outdoor learning environments:** Out Teach established 31 outdoor learning labs and learning stations across various regions.
- **Teacher feedback indicates a generally positive perception of Out Teach's professional learning, which earned a** Net Promoter Score (NPS) of 70, suggesting that Out Teach's professional learning sessions are meeting the needs of most teachers.

Recommendations

- Continue to provide targeted science-focused professional learning.
- Address the relevance and timing concerns raised in teacher feedback further to enhance the effectiveness of Out Teach's professional learning.
- Expand Out Teach's reach to serve more educators and students across the country.

Out Teach is making a meaningful impact on science education, instilling a passion for science in students through model lessons, equipping teachers, and converting outdoor spaces into vibrant learning environments. Aligned with national data and research, the organization's influence is seen in the positive results observed among both teachers and students. Given the critical role Out Teach plays in advancing science education, ongoing support for the organization is crucial to advance its mission.

Additional Notes

- Out Teach's work aligns with the following national data and research that shows instructional coaching has a positive effect on instructional practice and student achievement (1), particularly among novice teachers (2). Out Teach's impact on teaching practices and student learning experiences is consistent with the findings of these studies.
- Out Teach's professional learning is designed to be job-embedded, meaning that teachers receive coaching and support while they are teaching. This approach is effective because it allows teachers to apply the principles of inquiry-based teaching to their own classrooms.
- Out Teach's outdoor learning labs and learning stations provide teachers with the resources they need to create engaging and meaningful outdoor learning experiences for their students.

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ABOUT OUT TEACH

OUR VISION

We are working to ensure that all students, no matter their resources, have access to an engaging, hands-on education that transforms their lives.

OUR MISSION

We equip teachers with the power of experiential learning outdoors to unlock student performance.

INTRODUCTION

Out Teach is a non-profit dedicated to igniting the passion for science in future generations of innovators and empowering teachers nationwide to transform their outdoor spaces into dynamic learning labs, unlocking the wonders of science for their students. In 2022-2023, 111 educators participated in Out Teach's job embedded coaching program, including over 65% Black and Latino, 24% white, and 7% Asian teachers across STEM and humanities content areas. Out Teach also supported 43 teachers in planning session partnerships.

Measure by Design is a trusted third-party evaluation service. In this report, we demonstrate the impact Out Teach had on teaching practices and student learning experiences. We address two key questions:

1. Were services delivered in the way they were designed?
2. Did Out Teach services meet their intended outcomes?

Out Teach's team of program staff and coaches curates quality instructional resources and customized strategies and professional learning to enhance early elementary science education. The organization aims to cultivate teacher confidence in innovative science instruction, nurture students' enthusiasm for learning science, and elevate overall learning outcomes.

Out Teach's motivation to do this work is informed by national data that underscores the critical need for targeted professional learning for science teachers, particularly in elementary education where the workforce often needs more science-focused experience (3). Research consistently highlights the positive influence of extended professional learning on inquiry-based teaching practices (4).

While teachers are pivotal in shaping student achievement, only 33% of teachers have recently participated in science-focused professional learning tailored to science instruction (3)**.** This paucity of training is particularly alarming given the recent decline in fourth-grade science performance, disproportionately affecting lower- and middle-performing students from diverse backgrounds, as evidenced by the 2019 NAEP science assessment. Notably, lower-performing students have less exposure to inquiry-based activities, highlighting the need for increased collaborative and hands-on learning experiences.

These findings underscore the need to equip early childhood and elementary science educators with robust content knowledge and pedagogical strategies. Targeted professional learning in these grades is essential to reverse the downward trend in science education and foster a generation of scientifically literate students.

METHODOLOGY

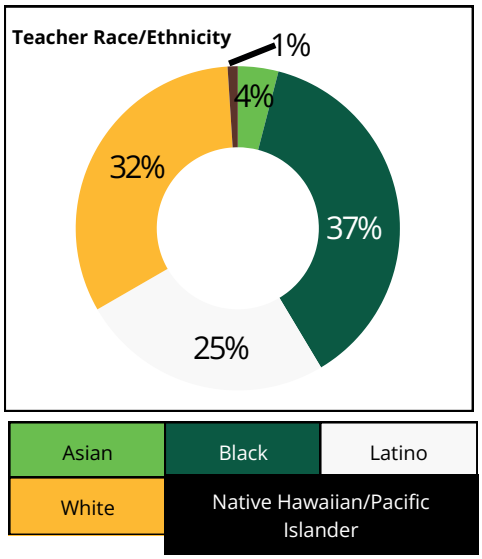
This report employs a mixed-methods approach, using survey and classroom observation data to comprehensively assess program impact centered **primarily on instructional coaching**, as prior research has shown instructional coaching to have the most significant effect on teaching practice compared to one-off-workshops and PD sessions (1). The survey measures, designed by Out Teach staff, aim to gather participant feedback and perceptions about program impacts on student experiences and outcomes. Additionally, Out Teach's observation tool, The Teacher Practice Guide was developed to provide more direct evidence of classroom practices. It was designed in partnership with Dr. Daphne Minner, Science Education Program Evaluator at Daphne Minner Consulting and Owner at Growing Garden Habitats (5).

Two key surveys were administered by Out Teach to 2022-2023 cohort participants to gather feedback and insights. The **Orientation Reflection** survey (111 responses), distributed post-cohort orientation, serves the dual purpose of enhancing programming and future coaching while gauging teachers' comfort with outdoor science instruction. Similarly, the **Capstone Reflection** survey (67 responses), distributed following the Capstone discussion—a forum for educators to share successes and reflect on their coaching experience—further provides feedback for program improvement. We supplement data from these instruments with teacher reflection data captured after each observation. In addition, we analyzed feedback from professional learning sessions to measure the quality of services provided to teachers, including science-focused professional learning customized to schools and workshops.

The **Teacher Practice Guide**, designed as a comprehensive observation protocol, extends beyond science education. It encompasses various dimensions, including English-Language Arts, math (focusing on intersections with science), social-emotional learning, and culturally responsive and sustainable pedagogy. Inspiration for these practices was drawn from the K-12 Science Framework, CASEL, and the Highlander Institute (recently rebranded as Throughline Learning), ensuring a holistic evaluation of teaching effectiveness. This tool measures 19 elements of teaching practice and student learning behaviors on a three-point scale. Schools/teachers selected elements based on their instructional needs. However, seven elements were common to most teachers (more than three-quarters of teachers addressed these elements). Out Teach coaches performed **two** classroom observations for 76 teachers during SY22-23. In addition to leading a model lesson, coaches used observation data to guide coaching conversations and co-design strategies centered on each teacher's classroom context. It is important to note that no Out Teach data was used for high-stakes evaluation.

This report employs descriptive statistics, such as averages, to describe patterns in observed and teacher-self-reported changes in instructional practices and student learning. To examine the hypothesis that teaching practices anchored in outdoor phenomena, student engagement, and student-centered learning behaviors can change before and after instructional support, a series of paired-sample t-tests was conducted. To address the potential for false positive results, we applied a Bonferroni correction, enhancing the robustness and reliability of our statistical analyses. Further, we analyzed **qualitative** feedback and insights provided by participants to enhance and explain the quantitative results.

The following section presents the sample sizes for the data sets used in this report. Note that the sample sizes differ across surveys. We analyzed the orientation survey (pre) and capstone survey (post) separately rather than matching, which would have reduced the sample size to less than 50 responses. We assume the data are roughly equivalent and missing responses are not associated with demographic characteristics.

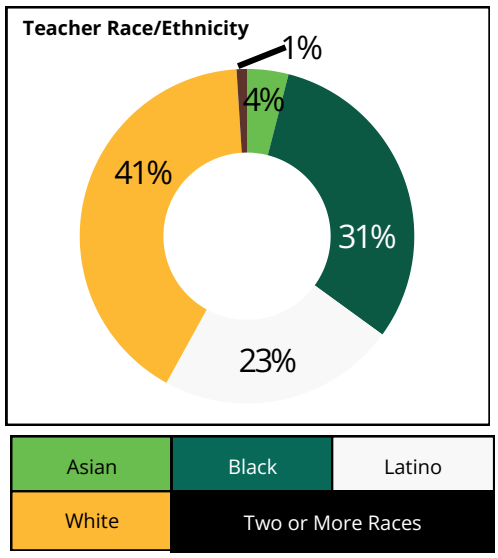


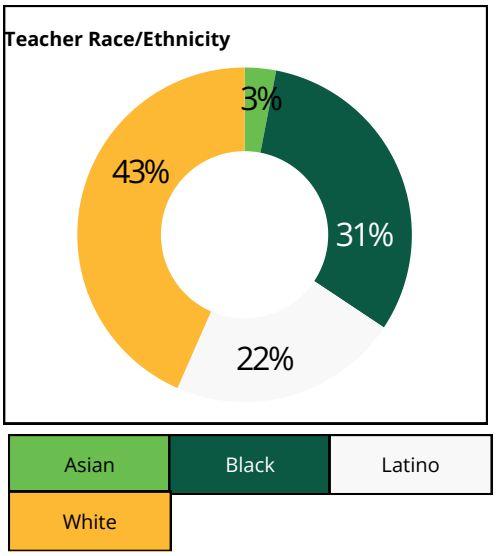
Orientation Survey

Completed by 111 elementary and middle school (grade 6) teachers, including 47% veteran and 21% novice teachers. and 32% with four to eight years of teaching experience. Additionally, the orientation survey responses represent 79% Science, 70% Math, 60% English Language Arts (ELA), 67% Social Studies, 7% Arts, and 3% Physical Education classrooms.

Classroom Observation

Completed observations for 76 elementary and middle school (grade 6) teachers/classrooms. This includes 46% veteran teachers, 19% novice teachers, and 35% with four to eight years of teaching experience. Additionally, the observations covered 73% Science, 67% Math, 57% ELA, 61% Social Studies, 7% Arts, and 2% Physical Education classrooms.



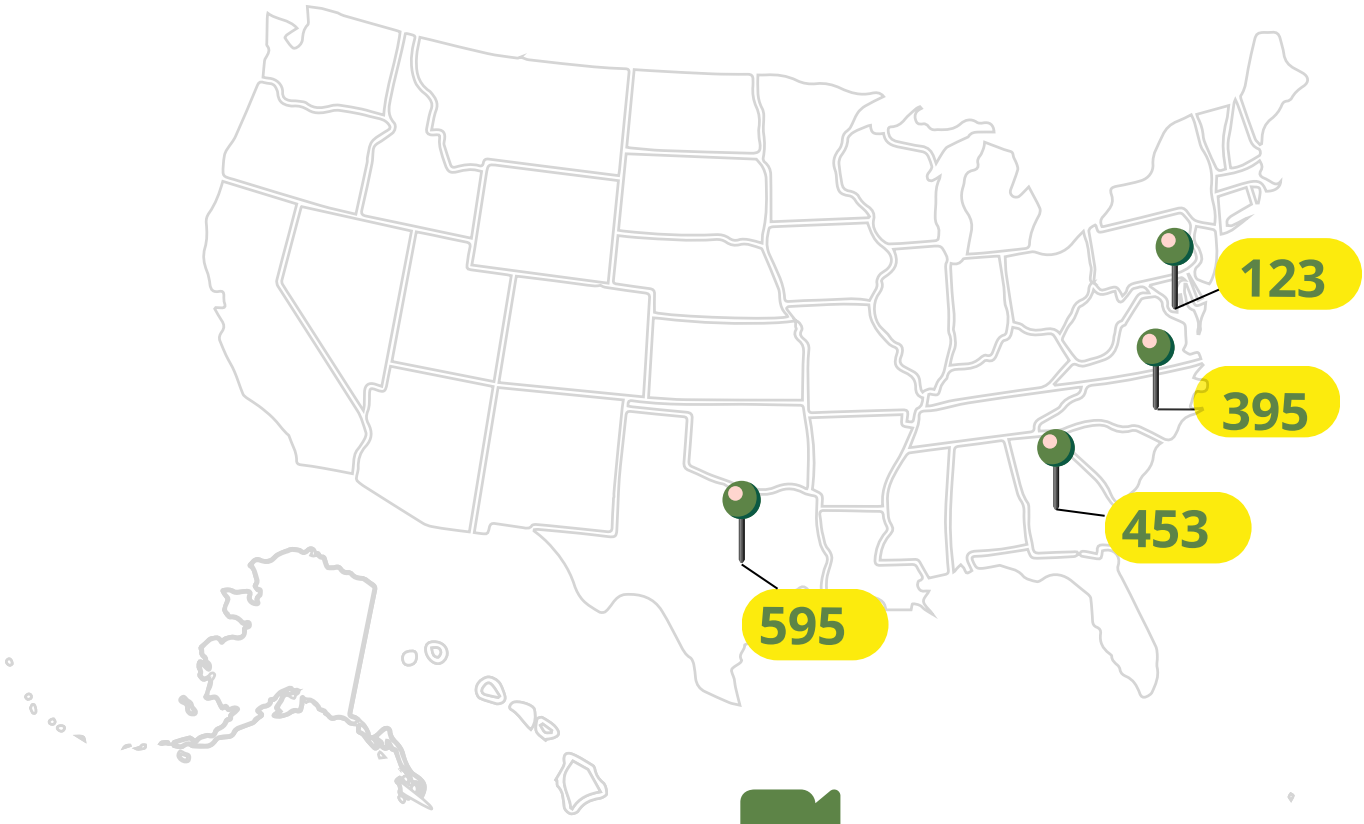


Capstone Survey

Completed by 67 elementary and middle school (grade 6) teachers, including 56% veteran and 20% novice teachers. and 24% with four to eight years of teaching experience. Additionally, the capstone survey responses represent 79% Science, 75% Math, 63% ELA, 63% Social Studies, 8% Arts, and 3% Physical Education classrooms.

REGIONAL IMPACT

Out Teach demonstrated a significant **reach** during the 2022-2023 academic year, with over **1,596** teachers reached through its professional learning and outdoor classroom services and over **39,900** students who received access to real-world learning. Out Teach held **44** in-school design consultations, helped to establish **31** outdoor learning labs and learning stations and reached **126** school campuses across North Carolina, Georgia, Texas, Maryland, and the District of Columbia.



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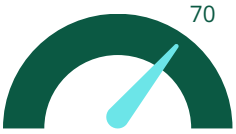
VIRTUAL PROFESSIONAL LEARNING COMMUNITIES

PROFESSIONAL LEARNING QUALITY

Out Teach's two most popular professional learning offerings achieved a **Net Promoter Score (NPS) of 70**. According to Bain & Company, an NPS score of 70 or higher is generally considered **excellent**. This indicates that the majority of teachers would recommend Out Teach professional learning to their colleagues.

PD & WORKSHOPS	FEEDBACK SUMMARY	NPS
Anchoring Instruction in Outdoor Phenomena	The feedback (92 responses) reflects a highly positive experience, with participants appreciating the presenters' skills, interactivity, and content.	
Inquiry-Based Learning	The PD's dynamic, interactivity, and the use of frameworks and real-world examples, enriched the learning experience for participants (33 responses).	

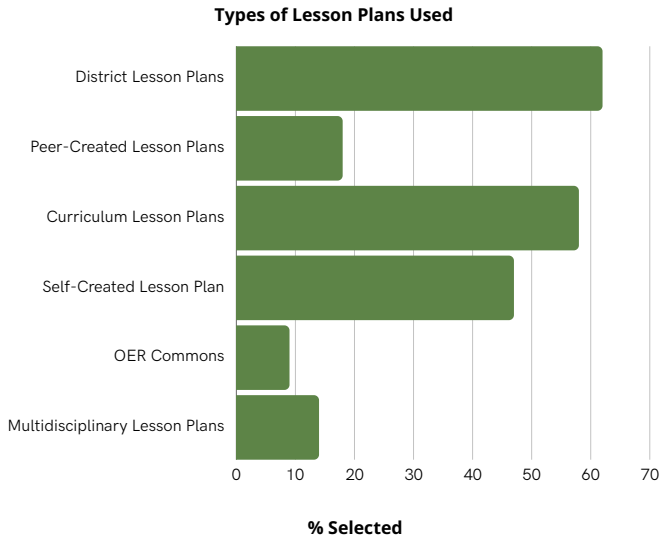
Data Source: PD Feedback Surveys; Capstone Survey, N=67

IMPACT OF COACHING ON OUTDOOR SCIENCE INSTRUCTION

In Out Teach's instructional coaching cohort, **only a third of teachers had received science-focused instructional coaching**. Their prior experiences with science-focused professional learning were diverse, with 78% having participated in opportunities like professional learning communities (PLCs), classroom observations, and single-session workshops as top choices.

Teachers relied on district-provided lesson plans, with 62% using them as their teaching resource. While these plans offer standardization for consistency across classrooms, they may lack flexibility for tailoring instruction to individual student needs, interests, and strengths. This is evident as 46% of teachers supplemented district lesson plans with their own "self-created" materials and additional resources.

Furthermore, while 87% found their pre-existing lesson plans helpful for high-quality instruction, fewer (70%) said the same for instruction anchored in outdoor phenomena. This emphasizes the demand for a more personalized approach to lesson planning, specifically tailored to outdoor phenomena.



Data Source: Orientation Reflection Survey, N=111

COACHING TRANSFORMED SCIENCE INSTRUCTION

Teachers (76) participating in Out Teach instructional coaching exhibited moderate growth in their teaching practices, even if they had strong initial practices. On average, Out Teach instructional coaching facilitated a shift in practices from "refining" to "implementing" across five key learner-centered, science-focused instructional practices. Overall, 63% of teachers demonstrated growth in one or more of these areas.

Plan and implement standards-aligned lessons anchored in outdoor phenomena (A.T.1.)

Teachers in this group demonstrated statistically significant and **moderate** growth with an effect size of 0.62 standard deviations.

Encourage multi-sensory exploration/ observation (A.T. 2)

Teachers in this group demonstrated statistically significant and **moderate** growth with an effect size of 0.48 standard deviations.

Pose a rigorous question/challenge that requires students to be scientists (A.T. 3)

Teachers in this group demonstrated statistically significant and **moderate** growth with an effect size of 0.68 standard deviations.

Encourage student choices about their own learning (B.T. 8)

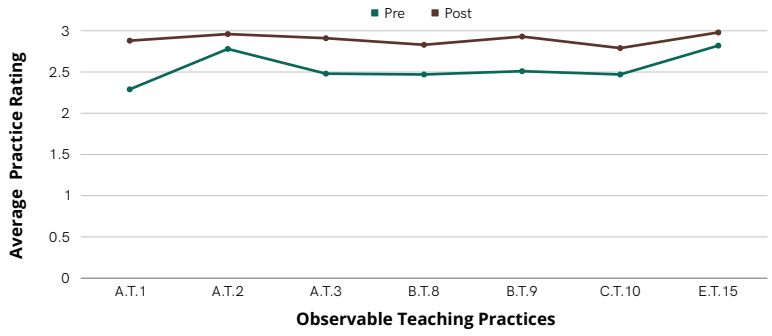
Teachers in this group demonstrated statistically significant and **moderate** growth with an effect size of 0.58 standard deviations.

Maximize time students are exploring (B. T. 9)

Teachers in this group demonstrated statistically significant and **moderate** growth with an effect size of 0.60 standard deviations.

Shift cognitive load to students by having students doing most of the speaking, generating ideas, sharing thoughts (C.T.10)

Teachers in this group demonstrated statistically significant and **moderate** growth with an effect size of 0.54 standard deviations

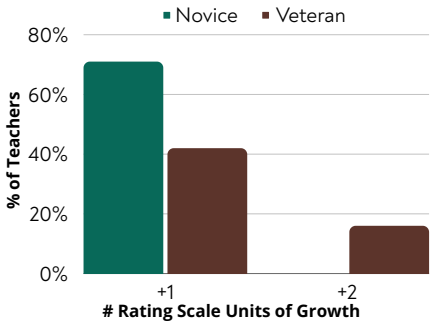


Data Sources: Observation 1 and Observation 2, N=76. Rating scale: 1 = Emerging, 2 = Refining, 3 = Implementing. E.T.15 "Clearly expresses goals for lesson and successful completion."

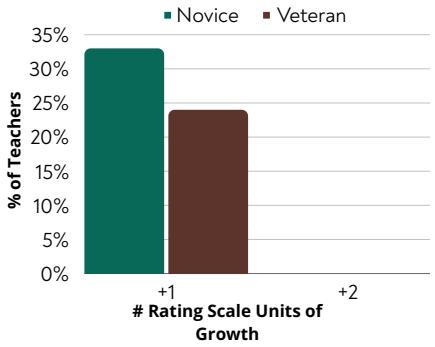
COACHING BENEFITTED NOVICE & VETERAN TEACHERS

Out Teach coaching transforms teaching practices, benefiting novice (those with less than 5 years of experience) and veteran educators (those with 10 or more years of experience). Out Teach empowers educators at all levels of experience and expertise to center their practices on students, tapping into their inherent strengths and promoting agency. Novice teachers, in particular, show more significant gains in fostering student ownership of learning, with 67% demonstrating growth, surpassing their veteran counterparts.

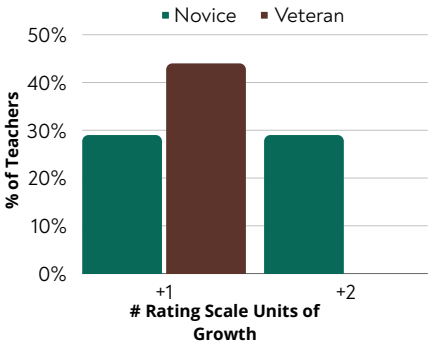
Plan and implement standards-aligned lessons anchored in outdoor phenomena (A.T.1.)



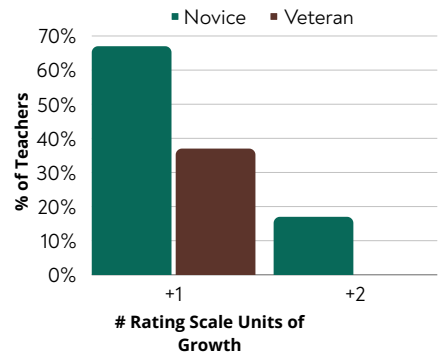
Encourage multi-sensory exploration/ observation (A.T. 2)



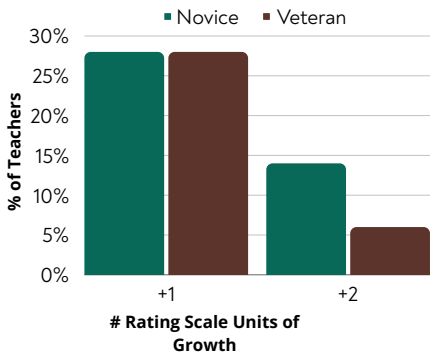
Pose a rigorous question/challenge that requires students to be scientists (A.T. 3)



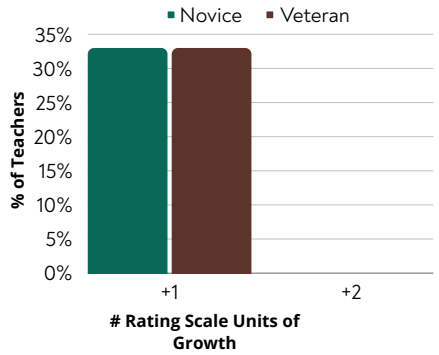
Encourage student choices about their own learning (B.T. 8)



Maximize time students are exploring (B. T. 9)



Shift cognitive load to students by having students doing most of the speaking, generating ideas, sharing thoughts (C.T.10)



> *[Out Teach coaching] has really impacted my students performance by engaging the students to be an active part of their own learning!*
>
> *Veteran Grade 2 Teacher*

> *Out Teach coaching has allowed me as the educator to give students more control over their learning.*
>
> *Mid-Profession Grade 5 Teacher*

ENRICHED LESSON PLANNING

> *I think the coaching helps me to manage time better when I am outside doing a lesson. It also helps me focus on the task and not side track.*
>
> *Veteran Grade 5 Teacher*

Teachers highlighted the significant impact of Out Teach coaching on their **lesson planning**. They learned to incorporate outdoor elements, hands-on activities, and creative teaching methods, resulting in a higher quality of education and more engaging lessons.

- One teacher reported, *"My lesson planning was most impacted because now I have a **new learning tool** to teach and reteach content." (2nd-grade Teacher)*
- Another teacher shared, "*Having someone to bounce ideas off of was very helpful; the lesson planning helped me come up with **new ideas/ways to teach.**" (5th-grade Teacher)*

Effective lesson planning enhances student learning outcomes through clear goal communication, curriculum translation, and alignment between instructional materials and assessments (6). Well-planned lessons facilitate individualized student support, contributing to teacher satisfaction and confidence.

CREATIVE TEACHING STRATEGIES

Coaching encouraged teachers to innovate their teaching practices. One teacher said, *"It required me to think outside the box to create lesson plans to meet the art common core objectives in an outdoor setting." (Veteran Arts Teacher)*

Teachers were prompted to develop hands-on, real-world, and problem-solving activities, which signaled a shift in their teaching approaches to enhance student learning. One 5th-grade teacher shared that the most impactful part of their Out Teach coaching experience was *"getting the opportunity to challenge myself to think differently than I normally did."*

Furthermore, teachers learned that outdoor teaching need not be elaborate; it can be simple and student-led. This discovery underscored the value of a flexible and adaptable approach to outdoor learning.

HIGHER SATISFACTION WITH INSTRUCTIONAL COACHING

Following Out Teach coaching, there was a significant improvement in **teachers' satisfaction levels**, with a higher percentage strongly agreeing or agreeing that they are completely satisfied with the **type** and **amount** of instructional coaching they receive. Moreover, a notable increase was observed in teachers' confidence in facilitating outdoor instruction after Out Teach coaching, as evidenced by a substantial rise in the percentage of those who strongly agree or agree. One early-career third-grade teacher shared, *"I enjoyed watching [coach] teach so I could have a representation of how the lessons should be taught and the level of expectations I need to meet. I also enjoyed speaking virtually with [coach] and the collaborative conversations we had."* Additionally, teachers attribute positive impacts on students' academic performance to the knowledge and skills developed through Out Teach coaching. Overall, these results indicate a marked enhancement in teacher satisfaction, instructional confidence, and student outcomes following Out Teach coaching.

93%

teachers strongly agree or agree they are "completely satisfied with the ***type*** of instructional coaching I receive" after Out Teach coaching vs. the 72% who strongly agreed or agreed before Out Teach coaching.

91%

teachers strongly agree or agree they are "completely satisfied with the ***amount*** of instructional coaching I receive" after Out Teach coaching vs. the 70% who strongly agreed or agreed before Out Teach coaching.

93%

teachers strongly agree or agree they are completely satisfied with how they facilitate outdoor instruction after Out Teach coaching vs. the 45% who strongly agreed or agreed before Out Teach coaching.

92%

teachers report "the knowledge and skills I developed **with Out Teach** have positively impacted my students' academic performance."

Data Sources: Orientation Survey, N=111; Capstone Survey, N=67; Observation 2 Reflections

99%

Proficient or Distinguished

After job-embedded coaching, 99% of teachers reported they were between “Proficient” and “Distinguished” in their knowledge and skill level to plan and facilitate high-quality instruction anchored in outdoor phenomena.

vs. the 72% who reported they were “Proficient” or “Distinguished” before job-embedded coaching.

> *I learned that I am capable of teaching outdoor lessons and reaching a wider range of students. I learned a bit about art journaling and the benefits of it and I hope to continue this and make it a routine with students.*
>
> *Grade 5 Arts Teacher*

Data Sources: Orientation Survey, N=111; Capstone Survey, N=67

INCREASED JOB SATISFACTION

Teachers, on average, gave an overall job satisfaction rating of **7.44** on a scale of 1-10 **BEFORE** job-embedded coaching.

Teachers, on average, gave an overall job satisfaction rating of **8.51** on a scale of 1-10 **AFTER** job-embedded coaching.

Data Sources: Orientation Survey, N=111; Capstone Survey, N=67

INSTRUCTIONAL COACHING CATALYZED MORE STUDENT-CENTERED CLASSROOMS

2,721

the number of students that benefitted from their teachers' growth in one or more science-focused teaching practices. In addition, **more than half** of the classrooms demonstrated growth in one or more observable student-centered **learning behaviors**, with "most" students experiencing **personalized learning experiences** anchored in outdoor phenomena after Out Teach coaching, on average (mean range = 2.77 to 2.97*).

The correlation coefficient* between teachers' growth in observable teaching practices and improvements in the number of students demonstrating learner-centered behaviors was .**83. As teachers transitioned to more student-centered and driven approaches, a higher number of students demonstrated learning behaviors anchored in outdoor phenomena.**

Emotional engagement with the outdoor phenomena (A.S.1.)

Classrooms in this group demonstrated statistically significant and **moderate** growth with an effect size of 0.64 standard deviations.

Sufficient time to complete the exploration/challenge/task (B.S.9.)

Classrooms in this group demonstrated statistically significant and **moderate** growth with an effect size of 0.60 standard deviations.

Use multiple senses to explore, collect evidence, and make claims (A.S.2.)

Classrooms in this group demonstrated statistically significant and **moderate** growth with an effect size of 0.63 standard deviations.

Engage in sense-making prior to scientific explanation being provided (C.S.10.)

Classrooms in this group demonstrated statistically significant and **substantial** growth with an effect size of 0.75 standard deviations.

Make choices about how to achieve the task or solve the problem (B.S.8.)

Classrooms in this group demonstrated statistically significant and **moderate** growth with an effect size of 0.63 standard deviations.

Data Source: Observation 1 and Observation 2, N=76; Student behaviors are measured on a 3-point scale, 1=Few, 2 = Some, and 3=Most. Correlation coefficients have a range of -1 to 1. Higher values represent stronger relationships between variables.

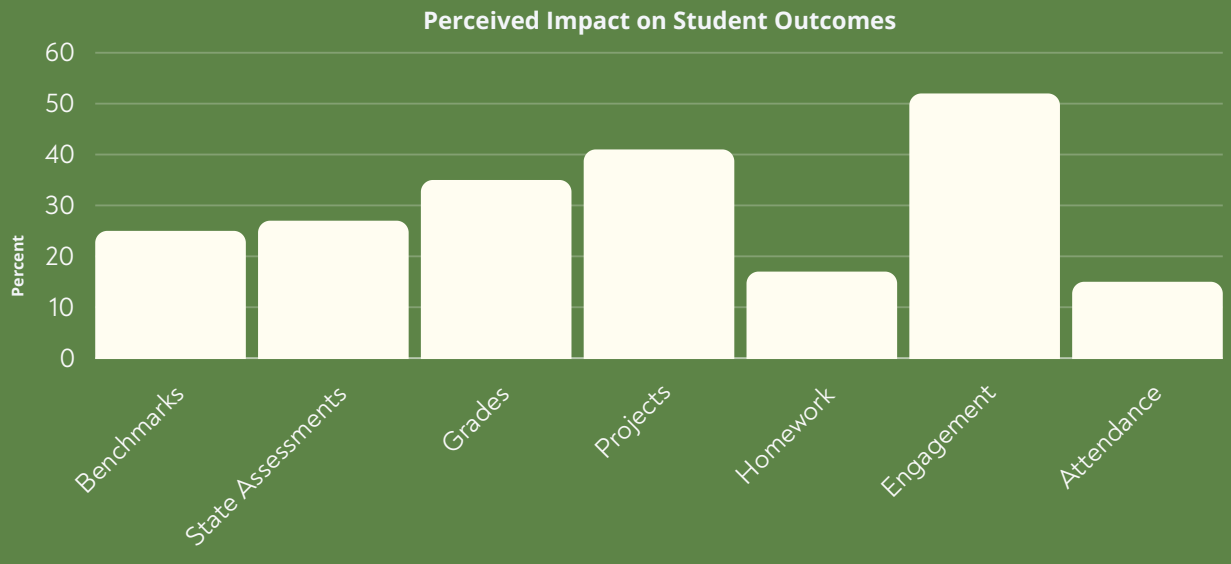
INSTRUCTIONAL COACHING ENHANCED STUDENT ENGAGEMENT

A significant component of the coaching experience was integrating outdoor learning. Teachers highlighted the positive impact of outdoor settings on student learning outcomes. **Out Teach participation led to increased student engagement**, observed and perceived. Of the various impacts of Out Teach coaching on student achievement teachers reported, **student engagement was ranked the highest**.

Further, teachers reported that students were empowered to take ownership of their learning. Out Teach coaching helped teachers foster greater collaboration among students and generate enthusiasm for outdoor learning, ultimately making lessons more engaging and interactive.

Learning outdoors was seen as a catalyst for improved engagement.

- One teacher commented, *"I love how engaged the students were. I love going outside and being scientists instead of always bringing nature and science inside."*
- Another teacher reported, *"Being outside gives the students a different feel and appreciation for learning. The students also enjoyed seeing what they made in life form. This added to their understanding."*

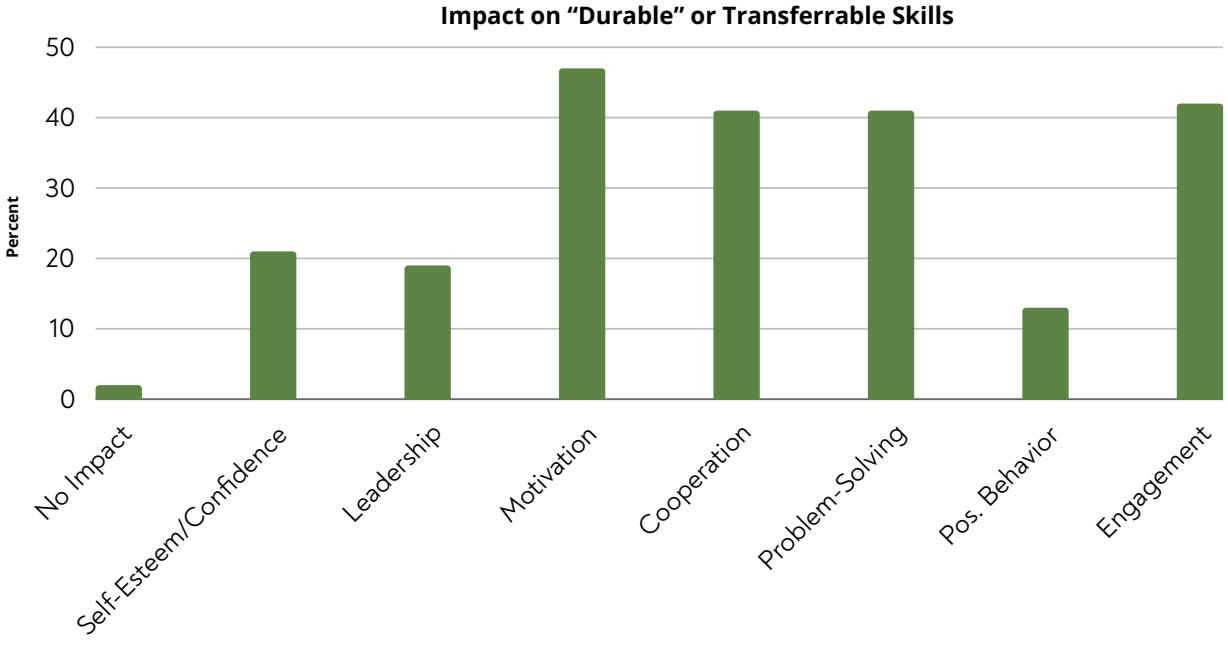


Data Source: Capstone Survey, N=67

INSTRUCTIONAL COACHING ELEVATED STUDENTS' DURABLE ("SOFT") SKILLS

When asked about the various impacts of enhanced science instruction on students, teachers identified the most significant effects on durable or transferrable skills such as problem-solving and cooperation, along with increased motivation to learn and improved project and work sample quality.

The importance of student collaboration and cooperation was emphasized by teachers. For instance, one teacher shared valuable insights gained from the strategies and approaches suggested by the coach. *"I've plenty of insights from the strategies and approaches suggested by [coach] in utilizing the "Square Foot Garden" in planting seeds to the garden beds. I've noticed that students were highly engaged, everyone was highly motivated, thrilled to be outdoors, and most importantly, they were very kind and working collaboratively with one another to accomplish the learning goals. The experience outdoors allowed them to connect the concept to real-life experiences."*



Data Source: Capstone Survey, N=67

SUMMARY

Out Teach professional learning services, its instructional coaching model, in particular, is an effective approach to improving science instruction in districts in North Carolina, Georgia, Texas, Maryland, and the District of Columbia. The program has positively impacted teachers' knowledge, skills, and confidence in teaching scientific concepts in a multidisciplinary approach. It has also improved student engagement, learning outcomes, and collaboration.

We recommend that Out Teach continue to provide targeted science-focused professional learning. The organization should monitor how well the program meets novice and veteran teachers' needs and possibly differentiate future services based on teachers' experience.

Overall, the Out Teach instructional coaching model is a promising approach to improving the quality of science education in the United States. The program has the potential to help all students succeed in science and prepare them for the challenges of the 21st century.

RECOMMENDATIONS FOR DISTRICTS

Based on the findings of this impact report, we recommend the following for other districts that are exploring approaches to improving student outcomes in science:

- Implement the Out Teach job-embedded instructional coaching model in other districts and schools across the United States.
- Provide additional funding for professional learning in science education, focusing on outdoor learning.
- Develop new and innovative science curriculum materials aligned with the Next Generation Science Standards and personalized learning pedagogical practices.
- Invest in infrastructure and resources for outdoor learning, such as gardens, nature trails, and science labs.

These recommendations will help further improve the quality of science education in the United States and ensure that all students can succeed in science.

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MEASURE *BY DESIGN*

OUR VISION

We believe that access, equity, and quality in education are key to building strong communities.

OUR MISSION

We partner with organizations to advance education and teaching effectiveness through high-quality and appropriately designed educational research, assessments and assessment processes, and program evaluation.

Dr. Jilliam Joe, Principal Investigator, brings 20 years of expertise and leadership in psychometrics, statistics, and large-scale research and evaluation. She founded Measure by Design, a minority woman-owned research, evaluation, and measurement consulting service, in 2014. Her extensive experience spans academic, edtech, and nonprofit settings, where she has consistently led impactful projects. Previously, Dr. Joe served as the lead researcher for a Chicago-based nonprofit focused on personalized learning. She oversaw learning analytics and program evaluation initiatives in this role, collaborating directly with educators and innovators to pilot and scale technologies and practices. Dr. Joe has supported various organizations in developing and evaluating educational programs, tools, and measures. Her portfolio encompasses various roles, including lead evaluator for Teach for America's Greater Chicago-Northwest Indiana teacher-leadership alumni programs. She served as a senior advisor and collaborator for The Learning Accelerator's hybrid and virtual schools strategy lab, contributing to developing a continuous improvement measure. Additionally, Dr. Joe worked as a senior advisor for Skillsline, a K-12 education technology focused on enhancing durable life and career readiness skills. Dr. Joe has contributed to innovative analyses on inclusive R&D in education through funding from organizations such as AERDF Reading Reimagined, the Bill & Melinda Gates Foundation, and the Walton Family Foundation. Also, she is currently co-PI of a $1.4M measurement grant (#R305A180149) funded by the U.S. Department of Education's Institute of Education Sciences focusing on developing a formative assessment observation protocol.