



OUTDOOR SCHOOL FOR ALL!

Diverse Programming and Outcomes in Oregon

**2019 Evaluation
Report**



CALL TO ACTION:

“Why Outdoor School? Like we teach the kids: facts matter. Students who attend Outdoor School perform better in school, bonding with their classmates and engaging more fully. They also learn to think like scientists—asking questions, demanding proof. Skills they need as adults and as citizens.”

- Rex Burkholder,
former Metro Councilor and Lead of
Outdoor School for All

Outdoor school has been an Oregon tradition for over 50 years. We know that engaging students in applicable, relevant and engaging experiences in the out-of-doors contributes to academic success and environmental literacy. However, there has been limited quantifiable measure of these outcomes statewide to date. How do we track and compare best practices without a common measurement system? A common measurement system enables programs to track their outcomes and consider changes within their individual programs over time; they can make evidence-based decisions for program improvement. A common measurement system provides consistent measurement among diverse programs and examines the collective impact of outdoor school in Oregon.

Our goal: Every student in Oregon has a transformative outdoor school experience — one that is inclusive, meaningful and high-quality.

Photo: Joe Kline



PROJECT OVERVIEW:

Outdoor School for All! Diverse Programming and Outcomes in Oregon is an ongoing evaluation project of outdoor school in Oregon. The intent of this project is to build understanding and knowledge about the outcomes of outdoor school programming and support program improvement. We built a common measurement system based on legislative requirements, a wide variety of data sources, existing literature/knowledge base, a pilot study and substantial input from stakeholders. The data gathered in this project support several elements of the statewide program. These include:

- ▶ Legislative reporting requirements (OR-SB 439)
- ▶ Equity, diversity and inclusion
- ▶ Professional development and learning
- ▶ Community engagement and outreach
- ▶ Program and curriculum development
- ▶ Research and evaluation

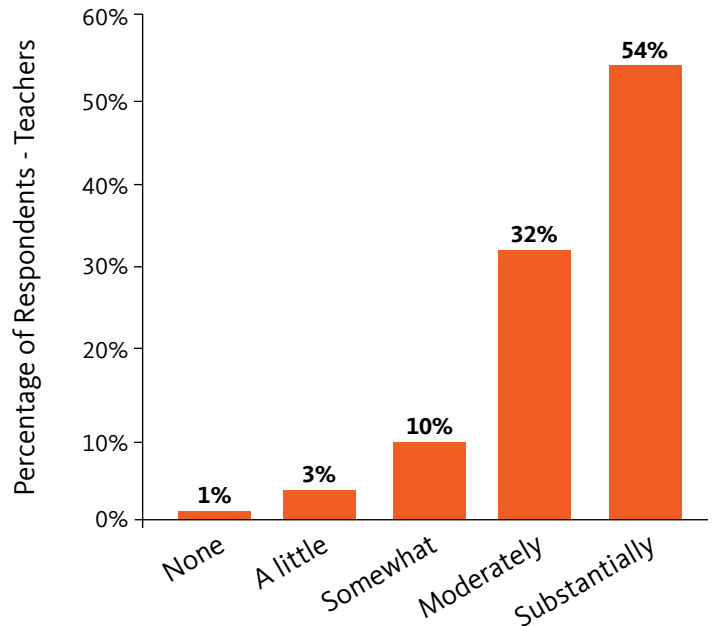
“Outdoor school benefits students both academically and socially. When they are engaged with peers in outdoor experiential learning, they feel, see and smell their lessons — some of which they’ll remember forever. I’ve seen students, even ones who struggle in the classroom decide on their life’s direction as biologists, teachers, social workers or foresters while at outdoor school. You can’t put a price tag on the value of getting kids out into the natural environment when it comes to the impact it could have on learning throughout their lives.”

- Randy Schild, Tillamook School District;
Oregon Superintendent of the Year

RESULTS AT GLANCE:

The common measurement system was implemented at 39 outdoor schools of differing length, programming and size; 182 teachers and 4,462 students participated during the 2018/19 school year. Results show significant positive gains and strong influence on many educational outcomes. These include:

To what degree does outdoor school improve/develop overall school engagement?



- ▶ ODE Essential Skills (e.g., critical thinking, teamwork)
- ▶ 21st Century Skills (e.g., problem solving, collaboration)
- ▶ Interest in learning
- ▶ Positive school behaviors (e.g., pay more attention)
- ▶ Student self-efficacy
- ▶ Legislative requirements (e.g., behavior, engagement, academic performance)
- ▶ Student learning: overall and specific to environment
- ▶ Environmental attitudes
- ▶ Social Emotional Learning Core Competencies (e.g., empathy, responsibility)

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SECTION 1 - ABOUT THIS PROJECT

Section 1.1 – Project Overview

Outdoor School for All! Diverse Programming and Outcomes in Oregon is an ongoing evaluation project of outdoor school in Oregon. The intent of this project is to build understanding and knowledge about current outdoor school programming and its intended outcomes. We built a common measurement system based on legislative requirements, a wide variety of data sources, existing literature/knowledge base, a pilot studyⁱ and substantial input from stakeholders. The data gathered in this project support several elements of the statewide program. These include:

- ▶ Legislative reporting requirements (OR-SB 439)
- ▶ Equity, diversity and inclusion
- ▶ Professional development and learning
- ▶ Community engagement and outreach
- ▶ Program and curriculum development
- ▶ Research and evaluation

“Outdoor School for All” is a strong state instruction, an expression of deep values in Oregon: equity, education, place and outdoors. Similarly, the legislative charge set forth in the Oregon Environmental Literacy Plan¹ (OR-HB 2544) calls for provision of outdoor education in Oregon. The Plan includes “making outdoor experiences part of regular school curriculum.” Oregon Senate Bill 439, with supporting funding from Oregon Measure 99, calls on Oregon State University Extension Service to “assist school districts and education service districts in providing outdoor school programs.” This includes “evaluating outputs and impacts of outdoor school programs.” This project does not fill this legal requirement. Rather, it began to meet an apparent need for high-quality evaluation of outdoor school programs statewide.

Indeed, the project continues to provide critical and timely information to Oregon State University (OSU) Extension Service Outdoor School program, to school districts and to outdoor schools to help provide high-quality outdoor education for all. What are the best practices to achieve equitable outcomes across all communities? What innovative strategies are schools and outdoor school providers using that could be shared statewide? and where are there opportunities for growth that could improve the outdoor school experience for participants? *Outdoor School for All! Diverse Programming and Outcomes in Oregon* seeks to answer these questions for the benefit of all students in Oregon.



ⁱ The pilot study and subsequent pilot report provide a basis for some of the analysis and content contained herein. Some sections/content are repeated here verbatim. To view the pilot study report see Braun (2019) in endnotes.

Section 1.2 – Methods

The common measurement system used in this study was created using an iterative participatory evaluation process. Various stakeholders from public schools, universities, communities and programs have been involved from around the state. Further, the common measurement system was informed by several data sources and various partnerships during a preliminary investigation¹ and subsequent pilot study². The preliminary investigation involved group interviews, an online survey and analysis of grant project evaluation reports. There were three objectives for the preliminary investigation:

- ▶ **Programmatic Features** - Identify the primary programmatic characteristics associated with diverse outdoor schools throughout Oregon.
- ▶ **Practitioner/Instructional Features** - Identify the primary factors associated with successful instruction and implementation of diverse outdoor schools throughout Oregon.
- ▶ **Youth Outcomes** - Identify the primary youth outcomes associated with diverse outdoor schools throughout Oregon.

Meaningful differences among outdoor school programs (e.g., pedagogy, facilities) and associated outcomes (e.g., attendance, skills) emerged during this investigation. Analytic procedures were used to code qualitative data (e.g., focus groups, survey, artifact analysis) and understand key themes. Open and axial coding occurred. Key themes were considered and synthesized, along with relevant literature, legislative requirements (OR SB-439)³, OSU Extension Service reporting/application materials and stakeholder input, to create a common measurement system. The variables we identified and subsequent questions we asked were created from thorough and specific study of Oregon’s outdoor schools. The system we developed is fully grounded in (i.e., driven by and reflective of) the Oregon outdoor school experience. Throughout the development process outdoor school providers and stakeholders have confirmed that they can see their program, students and outcomes represented in the common measurement system.

The three-part system also uses, and slightly adapts, one survey: Environmental Education Outcomes for the 21st Century⁴ (EE21). EE21 was designed for youth ages 11 and older and was validated, in part, using Oregon students attending outdoor school. In order to determine appropriate fit of EE21 for this study, all qualitative data (interviews, focus groups, survey, artifact analysis) were recoded and examined. The Crosscutting Outcomes which are measured in EE21 were used in a predetermined (i.e., a priori coding) manner to understand these qualitative data. The Crosscutting Outcomes ‘fit’ these data very well. This ‘fit’ demonstrated the appropriateness for use of EE21 in the common measurement system. Additional confirmatory feedback on EE21 involved committee, teacher and student review. The survey, which was designed for use nationally, had to be appropriate for Oregon, which our thorough analysis confirmed.



“I am a huge supporter of Outdoor School — a great example of environment-focused, project-based learning. Outdoor School leads to healthier and happier kids and promotes critical thinking.”

- Nancy Golden, former Chief Education Officer for Oregon

Environmental Education Outcomes for the 21st Century (EE21)

Outcomes and corresponding questions used in the student survey table provide a list of crosscutting outcomes and corresponding questions used in the student survey. For more information, see Powell, Stern, Frensley & Moore (2019).

| <i>Outcome</i> | <i>Definition</i> | <i>Questions (Items)</i> |
|---|--|---|
| Enjoyment | Positive emotions toward an experience | 1. How would you rate the program on a scale from 0 to 10? |
| Place connection (attachment) | Appreciation and the development of personal relationships and meaning with the physical location and its story. | 1. Knowing this place exists makes me feel good. 2. I want to visit this place again. 3. I care about this place. |
| (Environmental) learning | Knowledge regarding the interconnectedness and interdependence between human and environmental systems. | 1. How different parts of the environment interact with each other. 2. How people can change the environment. 3. How changes in the environment can impact my life. 4. How my actions affect the environment. |
| Interest in learning (motivation) | Enhanced curiosity, as well as increased interest in learning about science, the environment, or civic engagement. | 1. Science. 2. How to research things I am curious about. 3. Learning about new subjects in school. |
| 21st century skills | Critical thinking and problem-solving; communications; collaboration; and creativity and innovation. | 1. Solving problems. 2. Using science to answer a question. 3. Listening to other people's point of view. 4. Knowing how to do research. |
| Meaning/self identity | Individual purpose and identity as well as positive character traits. These may include a heightened sense of purpose, gratitude and optimism. | 1. Taught me something that will be useful to me in my future. 2. Really made me think. 3. Made me realize something I never imagined before. 4. Made me think differently about the choices I make in my life. 5. Made me curious about something. |
| Self-efficacy | Individuals' belief of their ability to use critical thinking to solve problems, make a difference in their community, address environmental issues and influence their environment. | 1. Believe in myself. 2. I feel confident I can achieve my goals. 3. I can make a difference in my community. |
| Environmental attitudes | Sensitivity, concern and attitude toward the environment. | 1. I feel it is important to take good care of the environment. 2. Humans are part of nature, not separate from it. 3. I have the power to protect the environment. |
| Action orientation | Intentions to perform behaviors relevant to the program's content or goals | 1. As a result of the program, do you intend to do anything differently in your life? (yes/no) |
| Actions: environmental stewardship (intentions) | Intentions to perform stewardship-related behaviors. | 1. Help to protect the environment. 2. Spend more time outside. 3. Make a positive difference in my community. |
| Cooperative and collaborative actions. | Cooperation and collaboration actions. | 1. Listen more to other people's points of view. 2. Cooperate more with my classmates. 3. Work together with other people to solve problems |
| Actions: school (positive behaviors) | Educational choices. | 1. Work harder in school 2. Pay more attention in class |

The common measurement system has three primary components designed to measure educational outcomes and characterize programming. Students, teachers and providers all participate. Both students and teachers provide critical information about effects, or outcomes, of outdoor school. Program providers provide critical information about their programming. More specifically, the first component is for the Outdoor School in Oregon program provider — someone very familiar with the actual program. Variables include Equity, Diversity, Inclusion (EDI), pedagogy and partnerships. The second component is for teachers — people familiar with the outcomes of the program. Variables include Social Emotional Learning Core Competencies⁵, elements of

Environmental Literacy⁶ and legislative requirements. The third component is for youth — the people whom the program is intended to affect. Variables (i.e., outcomes) include self-efficacy, interest in learning and cooperation/ collaboration. Several of these variables were measured using multiple survey questions (i.e., composite scores measuring one construct). Tests of internal reliability, confirmatory factor analyses and stakeholder feedback supported using composite scores to represent these outcomes. As a component of the iterative, participatory nature of this project, the system will be further modified based on stakeholder needs and future findings. The modified version(s) will be implemented biennially (2021, 2023, etc.).

Common Measurement Evaluation System

The table below provides an overview of the common measurement evaluation system. It highlights three main elements of the system; characterized according to the subject. For each subject, the type of measurement, the objective and important notes are listed. To view each of the three components of the common measurement system, visit <https://outdoorschool.oregonstate.edu/>

| Subject | Type of Measurement | Objective of Evaluation Measure | Notes |
|---------------------------------|---------------------|---|--|
| Outdoor school program provider | Online survey | Objective: characterize the nature of outdoor school programming. Details: measure some aspects of programming related to number of days, subject areas, instruction, equity/diversity/ inclusion and partnerships. | Providers complete the survey no more than annually. Survey results not included here; expected in 2021 evaluation report. |
| Teacher | Online survey | Objective: measure the perception of outcomes associated with outdoor school programming. Details: measure educational outcomes related to legislative requirements, social emotional learning, ODE essential skills, 21st century skills and environmental literacy. | Teachers who attend outdoor school take survey 2-4 weeks after outdoor school and presumably witness educational and behavioral outcomes associated with outdoor school. |
| Youth | Hard copy survey | Objective: measure the outcomes associated with outdoor school programming. Details: measure educational outcomes related to enjoyment, connection/place attachment, learning, interest in learning, 21st century skills, meaning/self-identity, self-efficacy, environmental attitudes, action orientation, environmental stewardship, cooperation/collaboration and positive school behaviors. | Youth take survey at the end of outdoor school. The survey, Environmental Education Outcomes for the 21st Century (Powell et al. 2019), was adapted slightly. Crosscutting Outcomes listed here fully aligned with results from preliminary study. |

The common measurement system was piloted during the 2017/18 school year. Results from the pilot study are not included here but are detailed in a separate report (Braun 2019). Findings from the pilot study informed our full study which occurred during the 2018/19 school year. During the full study, detailed in this report, we provide results from the 2018/19 school year. Results from student and teacher surveys are provided. Thirty-nine programs were identified to participate in the evaluation, yet 29 programs fully participated in the student survey. It is unclear how many programs participated in the teacher survey.

Large programs that served more than 350 students were sampled. No more than 350 students took the student survey for each program. Smaller programs were censused, contributing as few as 13 to the total sample. Each participating program received a confidential program-specific report which included their program's results. These reports were provided with support designed to continuously improve students' experience at outdoor school and include ongoing evaluation consultation and professional learning opportunities. This report does not consider programs at an individual level. Rather, the unit of analysis provided here is for the state of Oregon as a whole.

We made an important distinction with the lengths of programming. In the case of schools or providers that offer an outdoor school with a different length of time (e.g. 3-day and 6-day programs), we considered those distinct programs. And thus, some providers contributed more than 350 students to the sample because they had multiple programs. It became clear during the preliminary investigation, which included findings in the literature⁷ and stakeholder input, that the length of programming had significant impact on youth outcomes. We did not consider programming with the same length of time occurring at different facilities that used similar curriculum as different programs. While facilities have a big influence on youth experience, we did this partially out of convenience and recognize that bigger programs (those using multiple sites) often have relatively commensurate facilities. There was one exception where a provider used drastically different place-based curriculum at multiple sites. In this instance we differentiated programs by site as well. There were six providers that had two or more programs.

A total of 182 teachers from 113 public and parochial (private, faith-based) schools across 49 districts took the online teacher survey. A total of 4,462 students from 143 public and independent (e.g. parochial, private) schools took the survey. Of the original 4,462 student surveys, 355 were removed because there was little or no variability, a substantial amount of missing data or some other indication of invalidity. Then an additional 392 outliers were removed based on a Mahalanobis distance (Powell et al. 2019). Ultimately 3,715 student surveys were kept for potential analysis. The student survey was, primarily, administered to 5th and 6th grade students and high school leaders. A total of 3,417 5th and 6th grade students and 199 high school leaders (grades 9-12) were used for analysis. Surveys of students who did not indicate their grade level or indicated different grades (e.g., 7th grade) were omitted from analyses. Across all groups, the survey was administered near, or immediately after, the end of participants' outdoor school experience.

Early findings from both research and evaluation activities indicate programs that work with high school leaders are prevalent. Over 65% of teachers who participated in the evaluation indicated their outdoor school involved high school leaders. Nearly 1 in every 20 students in our sample was a high schooler. Extrapolating from this ratio, with an estimated 55,000 5th/6th grade students attending outdoor school annually, an estimated 2,500 to 3,000 high school leaders also participate in outdoor school annually. Given this prevalence, among other reasons, some outcomes for high school students were considered. This analysis of outcomes for high school leaders is not exhaustive, rather it's preliminary and supportive of an ongoing, parallel investigation.ⁱⁱ Except where noted (Section 6), high school leaders are not included in our results. An important distinction remains: data from the teacher survey may apply to either, or both, 5th/6th grade or high school student outcomes. All respondents were 5th/6th grade teachers and asked to report on outcomes evident 2 to 4 weeks after outdoor school. However, they were not explicitly asked to only report on outcomes for 5th/6th grade students.

ii Oregon State University Institutional Review Board Study ID #8927

Quantitative results were generated graphically and statistically. Frequency distributions were created for likert-style questions and boxplots were created to show distributions of composite scores. Basic summary statistics, mean and median, were generated. Kruskal Wallis tests of significance, with significance levels at $p \leq 0.05$, were used to compare among groups. Cronbach's alpha was used to measure internal consistency for composite scores. Qualitative data, such as quotes and open-ended survey responses were used in an anecdotal manner, supporting quantitative findings. Qualitative data gathered from throughout the time of study, 2014 to present, were used in this report.

The representativeness of the sample is difficult to determine, including the control group. Therefore generalizing the results from students participating in this study to all students in Oregon may not be appropriate. Sampling bias may have occurred. All accessible, available and interested programs were included. Programs were spread throughout the state, varied in size and duration of programming. Both overnight and consecutive day-only programs were involved. Some programs were school-specific and others were administered by providers. Larger providers, those which serve thousands of students annually, typically have multiple programs and thus contributed more than 350 students (max number per program) to the total sample. Data are nested. Therefore, the results presented

here may be more reflective of outcomes from these larger programs. Smaller providers, typically located in less populated areas of Oregon, contributed fewer students to the sample. Larger providers and programs are typically concentrated around large metropolitan areas where a majority of Oregonians live. Generally, this parallels overall participation statewide.

There are additional limitations to this study and situations where bias may affect results. This factor includes subject selection, response and measurement bias. Recommended sampling and survey procedures were standardized across programs, but not controlled by the evaluator. Ultimately program providers administered surveys according to their needs and constraints. No extreme deviations from survey or sampling procedures were reported. Results from the teacher survey are also limited as they are based on teacher perception of youth outcomes. Teachers who enjoy outdoor school may have inflated their responses. For example, they may have provided high scores to precise questions about youth skills simply because of their positive associations to the outdoor school experience (i.e., social desirability bias). Finally, the student survey was provided only in the English languageⁱⁱⁱ and designed for 5th to 12th grade audiences. Therefore, certain populations are either limited or excluded in their ability to take the survey. This may include students with visual impairments, below-grade reading levels and limited English proficiency.

iii Surveys translated in some languages (e.g., Spanish) are available as of 2020.



Section 1.3 – Community Engagement and Partnerships

Several stakeholders and community members were involved, to various degrees, in the creation of the common measurement system and subsequent implementation. The original project committee included several outdoor school program directors and educators, public school teachers with strong ties to outdoor school and local leaders in outdoor and environmental education. The committee was later expanded to include the OSU Extension Service Outdoor School’s Research, Evaluation and Assessment Work-Group when the state program convened its Advisory Committee and Work-Groups. Advisory Committee and Work-Group members represent a broad and diverse group of experts statewide. There was significant involvement by the OSU Extension Service Outdoor School Program during the 2018/2019 school year, when financial support for the project changed from Gray Family Foundation to OSU Extension Service. Support with methods, including data analysis, community engagement and development of training materials was also provided by partners outside Oregon as part of a grant project. This included researchers associated with Duke, Antioch, Clemson and Virginia Tech universities and several partners with expertise in evaluation, including culturally responsive evaluation. Friends of Outdoor School and the Oregon Environmental Literacy Program (OELP) are also strong partners. All of these efforts began as a project of the OELP, which is also within OSU Extension Service.

Surveys, focus groups, interviews, committee meetings, feedback sessions and a pilot study occurred over several years, starting in 2014. Feedback from over 150 educators, outdoor school providers and community members guided the process of creating a common measurement system representative of and accessible to all outdoor school programs and attendees. However, there are still substantial issues related to inclusion (e.g., Braille format, translation English language level) and diversity (e.g., racial diversity of project leadership). As previously discussed, the measurement tools (i.e. surveys) are exclusive to some populations. Further, recognizing that the project committee is not especially diverse, the methods and thinking may further inequities: they may communicate or reinforce barriers to culturally sustaining participation and success (i.e. oppressive forces). As the project moves forward, beyond the 2018/2019 study, these issues can be further addressed. The project team continues to change and collaborating with diverse community partners, is

working on an iterative, design-based evaluation process (cyclical process of prototyping, testing, analyzing and refining). Therefore the common measurement system, surveys, methods and beliefs, are expected to change over time according to community feedback, results and need.

Section 1.4 – Financial Disclosures

Outdoor School for All! Diverse Programming and Outcomes in Oregon began as a project of the Oregon Environmental Literacy Program (OSU Extension Service). Financial support was originally provided by Gray Family Foundation and is currently provided by OSU Extension Service Outdoor School program with funding from the Oregon State Lottery. During the course of the project, procedural and administrative support has been provided by the Oregon Environmental Literacy Program, Oregon Natural Resources Education Program and the Outdoor School program (all within OSU Extension Service) and the Friends of Outdoor School. Several organizations listed in the Pilot Study Report provided in-kind staffing support. Beginning in 2019, nearly all support (financial and in-kind) was provided by OSU Extension Service Outdoor School program. Use of 21st Century Environmental Education Outcomes occurred in collaboration with Drs. Bob Powell and Marc Stern and was developed as part of a National Science Foundation AISL grant. Additional support in the application (e.g., training) and improvement (e.g., updating surveys with EDI lens) of evaluation was provided with financial support from Gray Family Foundation and Pisces Foundation as part of a grant in partnership with Duke University.



Photo: Friends of Outdoor School

SECTION 2 - EVALUATION RESULTS: INDICATIONS OF STUDENT OUTCOMES

Outdoor school has a positive influence on students' educational outcomes. There was a positive influence on students' learning, dispositions (i.e., affective outcomes), their skills (i.e., school and community relevant competencies) and behaviors (via intention and motivation). While outcomes were measured with student and teacher data, this section only addresses outcomes measured and evident with student data. Results indicate significant positive gains and strong influence on many educational outcomes. Student responses show strong indications of outcomes for questions phrased "as a result of the experience ..." and retrospective pre-post questions.^{iv} Significant differences were also observed when comparing outcomes of students who attended outdoor school with those in a control group. Students' open-ended responses also support these results.

Section 2.1 - Educational and Attitudinal Outcomes of Outdoor School

Results indicate strong influence on many educational outcomes. Average values for students' outcomes ranged from somewhat to strong for all outcomes measured on the student survey. Positive influence on environmental attitudes and self-efficacy were the strongest, followed next by enjoyment and place connection. All are attitudes (i.e., dispositions). Interest in learning (motivation) and 21st Century Skills were relatively the weakest, suggesting that while outdoor school positively affects academics, it's most effective with character and social emotional development. The 5th/6th grade student responses (n ≥ 3310) from 143 different schools and 29 different outdoor school programs indicate:

- ▶ Students learn at outdoor school.
- ▶ Students' interest and motivation to learn increase because of outdoor school.
- ▶ Students further develop purpose and identity because of outdoor school.
- ▶ Students develop a connection to and appreciation for their outdoor school site/location.
- ▶ Students (further) develop sensitivity to and concern for the environment because of outdoor school.
- ▶ Students' 21st Century Skills (e.g., critical thinking, communication, innovation) are increased because of outdoor school.

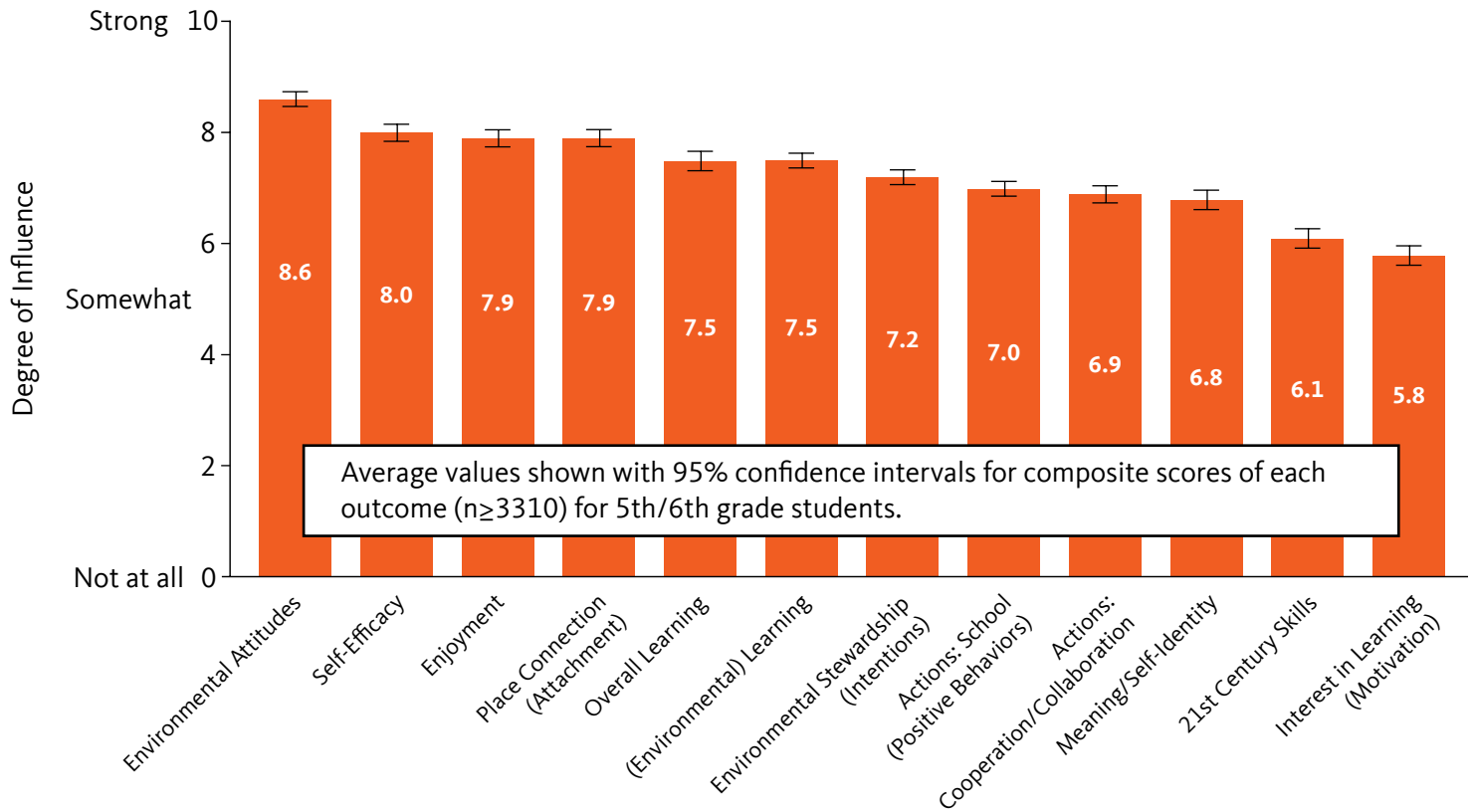
- ▶ Students are more likely to perform environmental stewardship behaviors because of outdoor school.
- ▶ Students are more likely to positively engage with their school (e.g., pay attention in class) because of outdoor school.

"Outdoor School is for All, and this means people with disabilities. The how of inclusion is very important and therefore appropriate accommodations and modifications are paramount. Specialized equipment, facilities, programming and training must occur. Respectfully centering the needs of students with disabilities can be a transformative experience for everyone. Imagine a student using a wheel-chair, a cool one they are proud to use, happily become the center of attention as their peers rally to help them on a how. Finally, there's the why. Everyone, regardless of ability deserves access to the full outdoor school experience."

- Geoff Babb, AdvenChair

^{iv} Retrospective pre-post survey questions were answered at the end of outdoor school, but asked students to answer each question (e.g., "I believe in myself) twice. First they reflect on how they felt before the experience and then answer how they feel now, at the end of outdoor school.

Educational and Attitudinal Outcomes of Outdoor School



"I love this place and I don't want to leave, plus I want to be a student leader."

- Student

"... it made me realize how much more I can do."

- Student

Implication: Results suggest that outdoor school affects how youth feel and act toward school and learning, themselves, their peers and the environment. Further, outdoor school equips students with skills to thrive in school, with peers and it influences both their communities and environment.

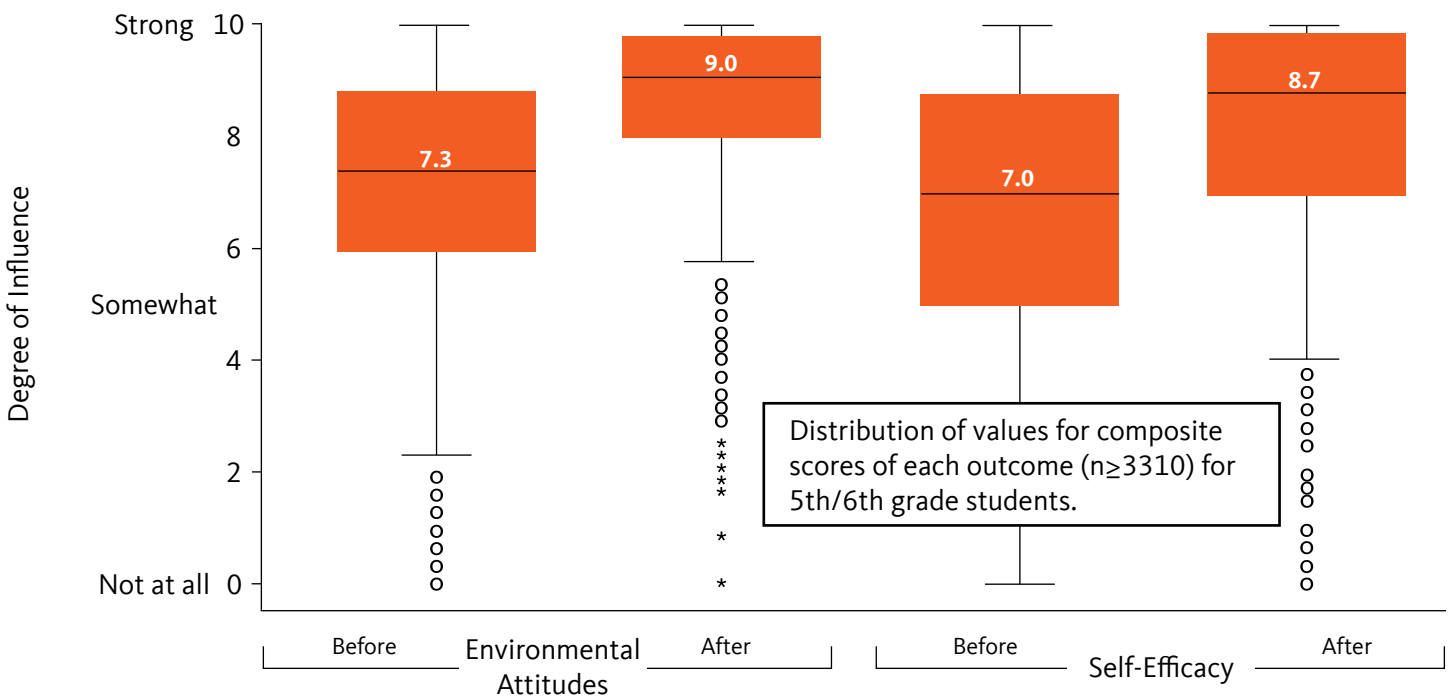
Section 2.2 - Change in Student Attitudes

Results indicate a change in students' attitudes associated with attending outdoor school. There were statistically significant gains (retrospective pre-post) in students' indications of environmental attitudes ($Z=43.733$, $p=0.00$) and self-efficacy ($Z=42.422$, $p=0.00$) before and after the outdoor school experience. The 5th/6th grade student responses ($n \geq 3310$) from 143 different schools and 29 different outdoor school programs indicate:

- ▶ Student self-efficacy (i.e., belief in their ability to solve problems) is significantly increased at outdoor school.
- ▶ Students' environmental attitudes (i.e., sensitivity, concern and attitude toward the environment) is significantly increased at outdoor school.



**Environmental Attitudes and Self-Efficacy
Before and After Outdoor School**



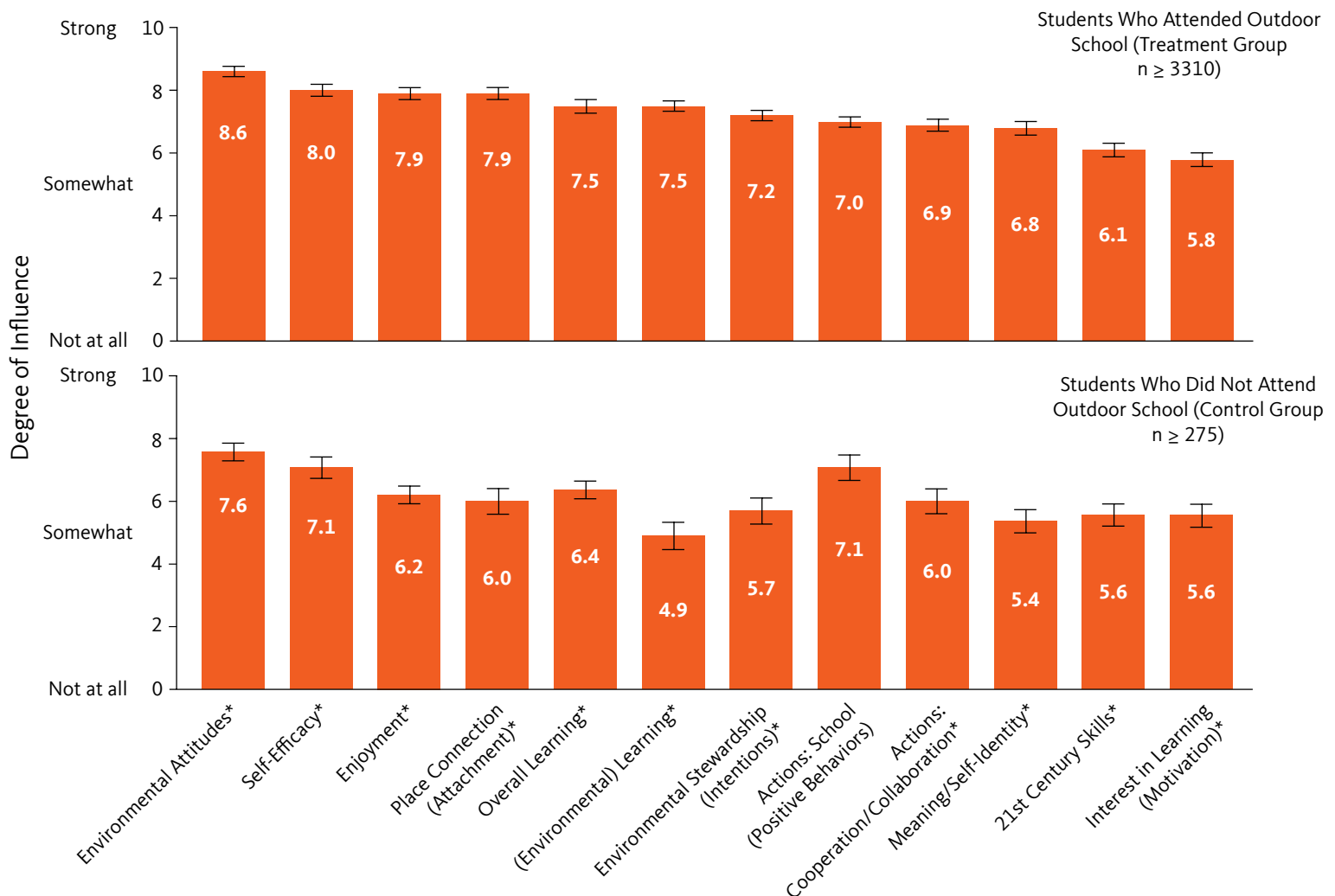
Section 2.3 – Outdoor School Compared to a Typical Week of School

Results show meaningful differences in outcomes of outdoor school when compared to a typical week of school for 5th/6th grade students. There were statistically significant differences showing greater (i.e., higher) outcomes associated with outdoor school in all but one of the 12 outcomes measured. Positive school behaviors (working harder, paying more attention), was commensurate among the two groups. This suggests that outdoor school is just as effective (somewhat to strong) as a typical week of school in producing this outcome. Comparisons of students' before and after outcomes corroborate these findings. There were

no significant differences among groups (treatment vs. control) beforehand, but there were differences afterwards. Similarly within groups (pre-post), there were only significant differences for students attending outdoor school. The 5th/6th grade responses ($n \geq 3310$) from students at 143 different schools who attended 29 different outdoor school programs were compared to responses ($n \geq 257$) of students from three different schools who were not attending outdoor school, suggesting that outdoor school is more effective than a typical week of school in producing nearly all of the outcomes measured in this evaluation.

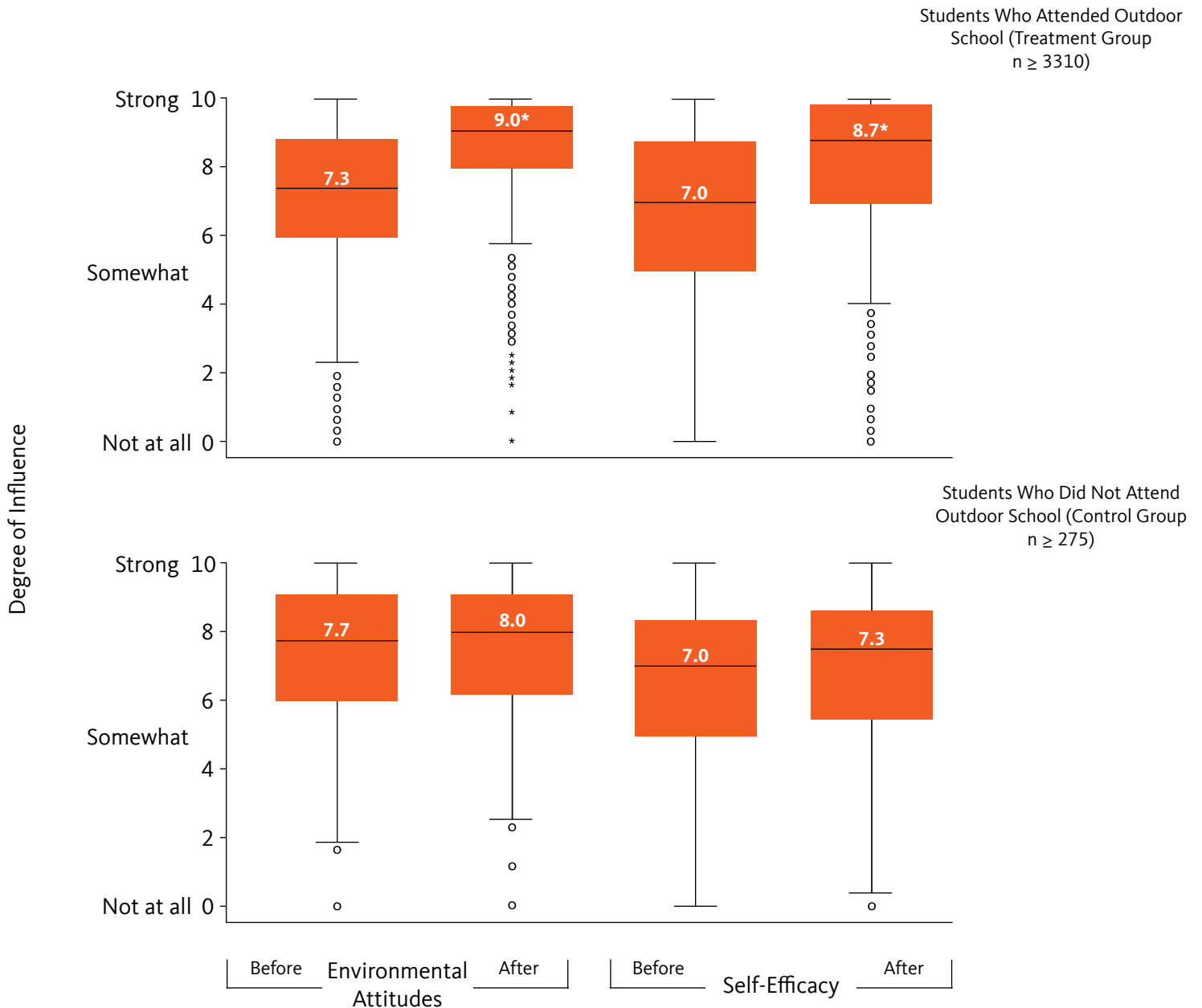
Outdoor School Compared to a Typical Week of School

Average values shown with 95% confidence intervals for composite scores of each outcome for 5th/6th grade students. Outcomes (x-axis) marked with an asterisk denote statistically significant differences ($p \leq 0.05$) were found.



Outdoor School (Before and After) Compared to a Typical Week of School

Distribution of values shown for composite scores of each outcome. Outcomes on x-axis marked with an asterisk denote statistically significant differences ($p \leq 0.05$) were found when comparing among groups (treatment vs. control). Median values marked with an asterisk denote statistically significant differences ($p \leq 0.05$) were found when comparing within a group (before and after, outcomes only changed for students attending outdoor school.).



SECTION 3 - STUDY HIGHLIGHTS: EQUITY, DIVERSITY AND INCLUSION (EDI)

Youth outcomes were considered (and disaggregated) by various identities (racial/ethnicity and gender). Several outcomes (e.g., empathy or respect for diversity) are necessary to cultivate EDI in schools and communities. Results indicate that outdoor school has a positive effect on students' awareness and relationship skills. This might be because students often work together (across different schools or their social groups) in a novel and intimate environment. Additionally, some disparities of outcomes occurred among racial and gender identities. When comparing outcomes for gender identities, girls/females consistently had the highest scores (indications of outcome). When comparing outcomes among racial/ethnic identities, Hispanic/Latinx students had the highest outcomes. Students identifying as Asian and as Black or African American had the lowest outcomes. Finally, teachers indicated that outdoor school had a positive impact on students who need substantial academic and behavioral support.

Section 3.1 - Youth Awareness and Relationship Skills

Results indicate outdoor school has a positive effect on students' social awareness and relationship skills. These skills are among the core competencies of Social and Emotional Learning and can help build equity consciousness.⁸ Student responses indicate that participating in outdoor school makes them more likely to cooperate and collaborate. Teacher responses (n ≥ 143) from 113 different public and independent schools from at least 49 different school districts indicate:

- ▶ Outdoor school helps students develop an appreciation for diversity.
- ▶ Outdoor school helps students develop respect for others.
- ▶ Outdoor school helps students develop empathy.
- ▶ Outdoor school helps students develop communication skills.
- ▶ Outdoor school helps students develop responsibility.

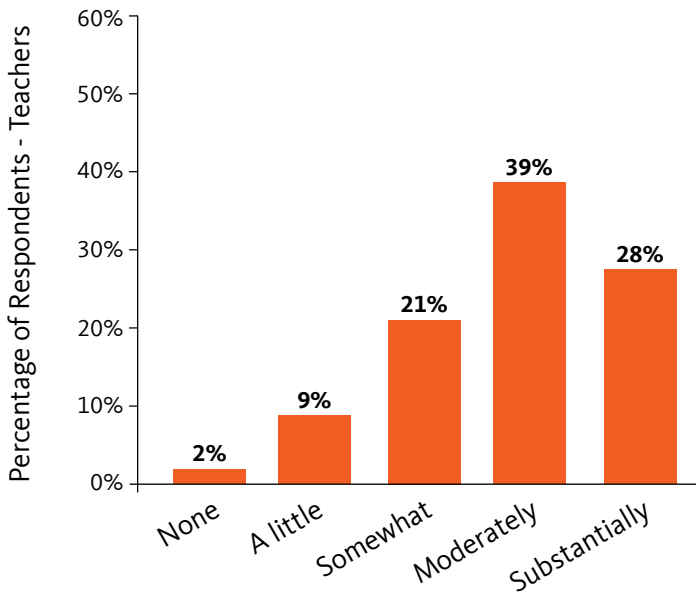
Equity Consciousness: person's awareness of the level of equity and inequity present in behaviors, policies, settings, organizations, and outcomes. In other words, equity consciousness refers to how aware or mindful people are as to whether others around them are receiving fair and equitable treatment, how well they understand the phenomenon of inequity, and how willing they are to become involved in solutions.⁹



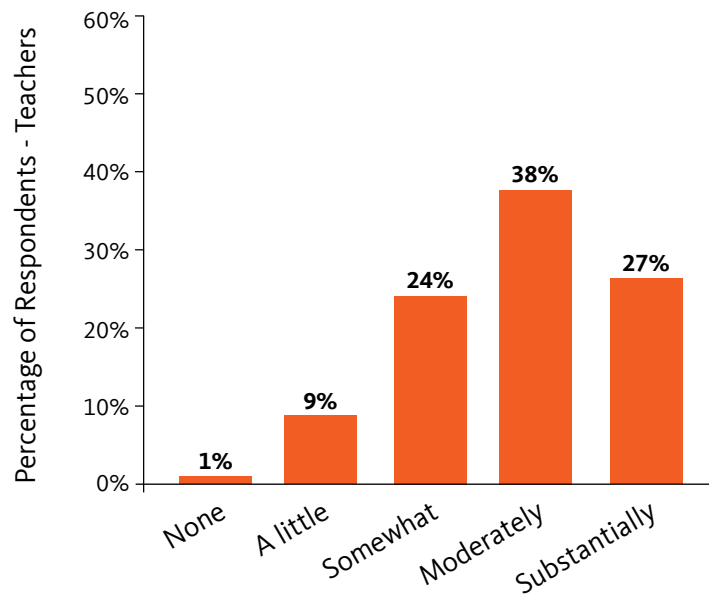
"The outdoor school site accepts everyone no matter their ethnicity, race or gender."

- Student

How much does outdoor school help students appreciate diversity?



How much does outdoor school help students develop empathy?



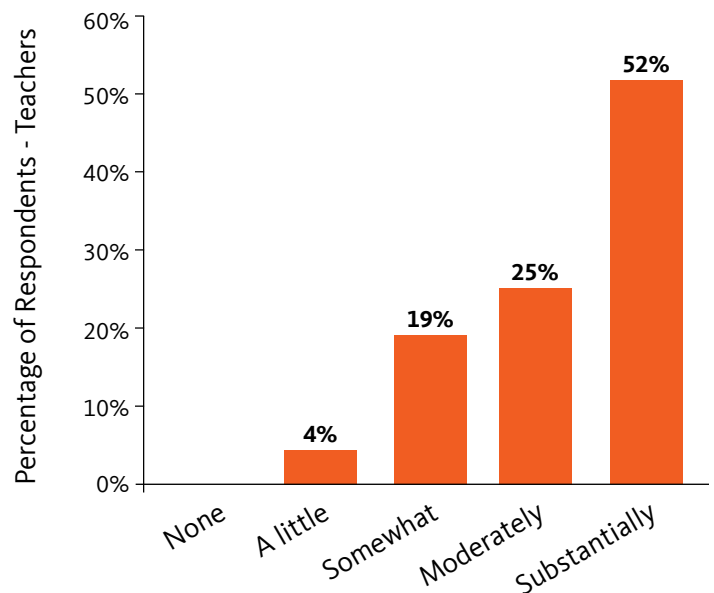
“This is by far one of the best experiences our students will ever have in their young lifetime. A week is really what is necessary for this to be the awesome and beneficial program it was designed to be.”

- Teacher

“I would like to say that this place feels free and safe for people that are different ... I’m a part of the LGBTQ community.”

- Student

How much does outdoor school help students develop responsibility?



Implication: Results suggest that outdoor school is effective in helping students build equity consciousness. This is particularly important as students (not just teachers) have great power to promote equity, diversity and inclusion in their schools and communities.

Section 3.2 – Gender Equity in Youth Outcomes

Educational outcomes were not the same across gender identities. Girls/females generally showed much higher outcomes than all other students. Statistically significant differences occurred for all outcomes except interest to learn (motivation) and 21st Century Skills. Pairwise comparisons for girls/females to boys/males revealed statistically significant differences for all outcomes (e.g., actions: cooperation and collaboration, $Z=4.24$; Sig. 0.00) except interest in learning (motivation) and self-efficacy. Pairwise comparisons for students in the collapsed gender identity transgender/non-binary to both boys/males and girls/females revealed statistically significant differences, yet they should be viewed with caution given the relatively low number of students who

identified in the collapsed gender identity transgender/non-binary. The significant differences were in self-efficacy, actions: school behaviors when compared to both girls/females (e.g., $\chi^2=564.74$, Sig: 0.00) and boys/males (e.g., $\chi^2=600.49$, Sig.=0.00) for self-efficacy only. Students who identified in the collapsed gender identity as transgender/non-binary also showed significant differences in their before and after outcomes, environmental attitudes ($Z=4.44$, Sig. 0.00); and self-efficacy ($Z=4.42$, Sig. 0.00). The degree of change was commensurate or higher than peers with different gender identities. This suggests that this group of students both experiences outcome disparities and that outdoor school is making some progress in addressing those disparities.

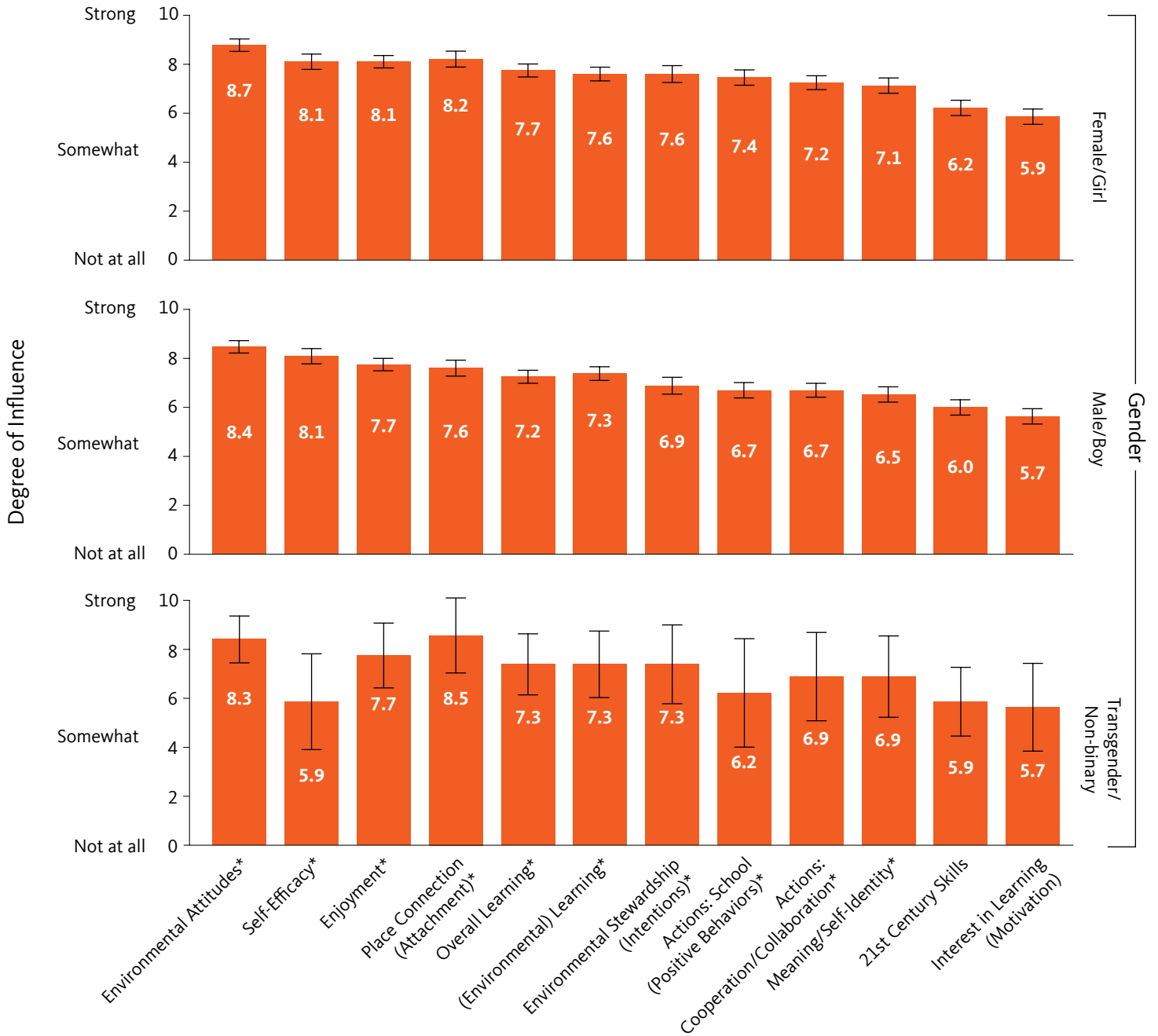
“We believe every student has the right to an inclusive and transformative outdoor school experience.”

- Oregon State University Extension Service Outdoor School program, Mission and Core Values



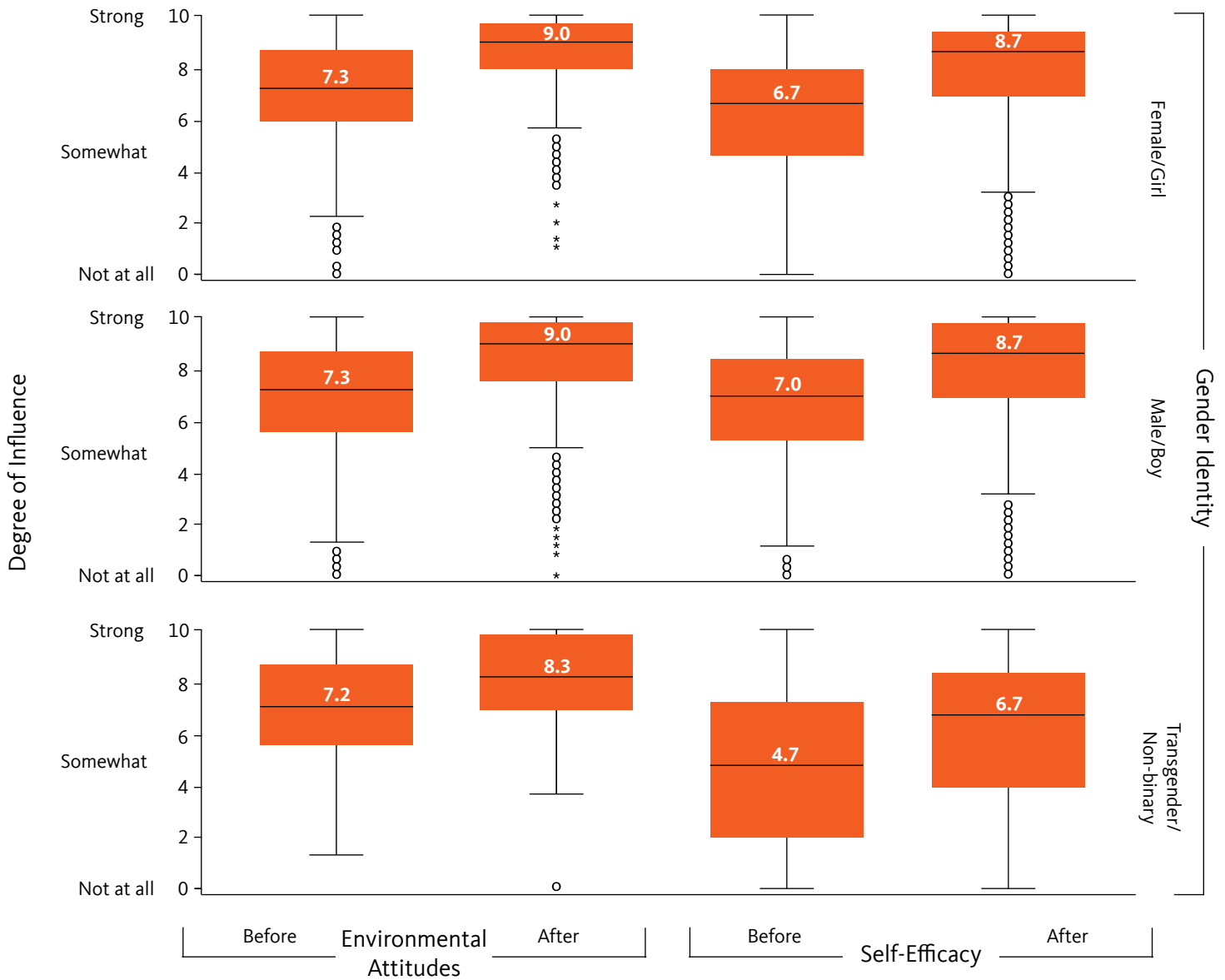
Outcomes Associated with Outdoor School Experience Arranged by Gender Identity

Average values shown with 95% confidence intervals for composite scores of each outcome for 5th/6th grade students. Outcomes (x-axis) marked with an asterisk denote statistically significant differences were found.



Environmental Attitudes and Self-Efficacy Before and After Outdoor School Arranged by Gender Identity

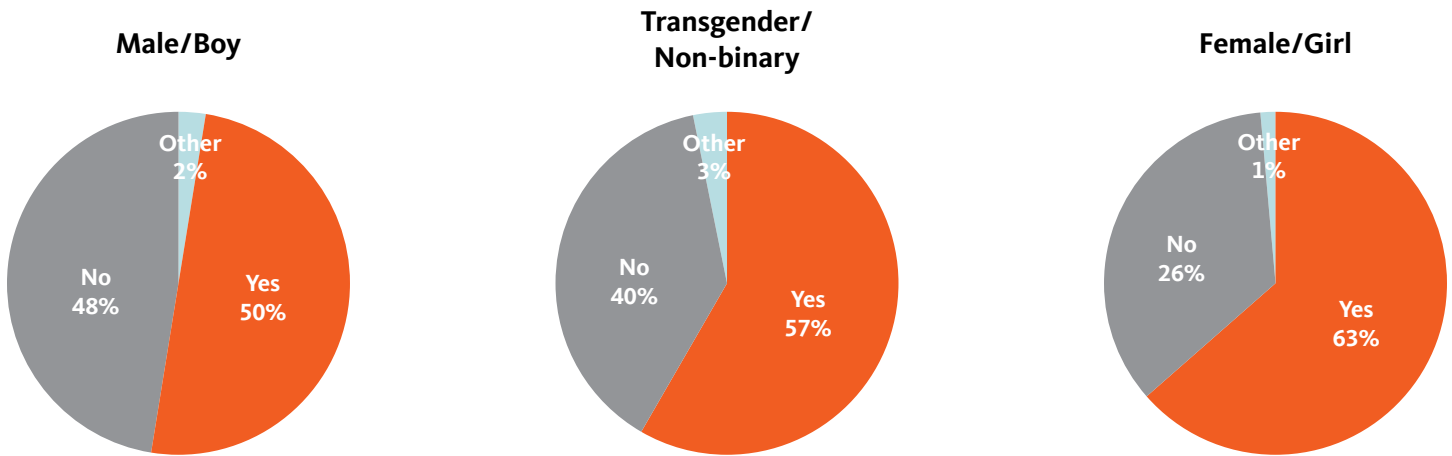
Distribution of values shown for composite scores of each outcome for 5/6th grade students.



Implication: Gender inequities exist. Most particularly girls/females showed higher programming outcomes than their peers with different gender identities.

Action Orientation Arranged by Gender Identity

As a result of this experience, do you intend to do anything different in your life?



Section 3.3 – Racial and Ethnic Equity in Youth Outcomes

Educational outcomes were not the same across racial identities. Differences among many groups were varied. Students who identified as Hispanic or Latinx generally had the highest outcomes. In nine of 12 outcomes, their average scores were the highest of all racial/ethnic identities. These relatively high outcomes should be viewed with caution, given a strong body of literature¹⁰ suggesting positive testing bias (i.e. nicer on surveys) for persons of this racial/ethnic identity. Conversely students identifying as Asian or Black and African American generally had poorer outcomes when compared to their peers. Both groups had the lowest outcomes in five of 12 instances. There may be other factors associated with racial or ethnic identity that affected student outcomes. Factors such as English language acquisition, socioeconomic factors (often measured with percentage of free and reduced lunch) and immigration status may have influence on student outcomes, yet were not measured in the survey. Racial and ethnic identity is not intended to be a proxy for these important factors, rather it is important to recognize important associations with race and ethnicity.

The average score for outcomes varied substantially among racial and ethnic identities. Those outcomes with a high range (rightmost column in table on page 24) may suggest areas where the outdoor school experience is highly varied for students with different identities. Place connection and environmental stewardship have a markedly higher range in these disaggregated outcomes. This may suggest areas where programming is culturally specific or has implicit biases in the hidden or null curriculum.¹¹ Additionally, those outcomes which were both statistically significant and relatively among the lowest, may be appropriate for providing targeted support for/to respective racial/ethnic identities.

Formal curriculum: Teaching materials explicitly chosen for instruction

Societal curriculum: Ongoing informal curriculum of family, peers, community, media, etc. that educates us

Hidden curriculum: Messages, beliefs, values, or lessons often taught unintentionally, and usually informally, in a school system

Null curriculum: That which we do not teach, giving students the impression it does not matter

Racial and Ethnic Equity in Youth Outcomes

Table shows average values of outcomes for each racial identity. Arrows are provided for comparison and indicate the relatively highest and lowest average value for each outcome. Asterisks indicate statistically significant differences (Sig ≤ 0.05), when students from racial/ethnic identities are compared with all other students in the sample.

| <i>Outcome</i> | <i>American Indian/ Native Alaskan (n=261)</i> | <i>Asian (n=193)</i> | <i>Black/ African American (n=109)</i> | <i>Hispanic or Latinx (n=446)</i> | <i>Middle Eastern or North African (n=49)</i> | <i>Native Hawaiian or Pacific Islander (n=79)</i> | <i>White (n=2046)</i> | <i>Not Provided; Described (n=318)</i> | <i>Range</i> |
|---|--|----------------------|--|-----------------------------------|---|---|-----------------------|--|--------------|
| Overall Learning | 7.50 | 7.14 ↓* | 7.58 | 7.71* | 7.18 | 7.76 ↑ | 7.42* | 7.41 | 0.62 |
| Enjoyment | 7.98 | 7.39 ↓* | 7.40* | 8.02 ↑ | 7.55 | 7.89 | 7.91 | 7.82 | 0.63 |
| (Environmental) Learning | 7.38 | 7.23 ↓ | 7.34 | 7.84 ↑* | 7.60 | 7.60 | 7.40* | 7.34 | 0.61 |
| Interest in Learning (Motivation) | 5.64 ↓ | 5.68 | 5.76 | 6.08 ↑* | 5.76 | 5.99 | 5.70* | 5.70 | 0.44 |
| Meaning/Self-identity | 6.67 | 6.36 ↓* | 6.54 | 7.20 ↑* | 6.50 | 7.06 | 6.71* | 6.69 | 0.84 |
| Place Connection (attachment) | 7.96* | 7.37* | 7.04 ↓* | 8.06 | 7.72 | 8.14 ↑ | 7.88 | 7.93 | 1.10 |
| Environmental Attitudes | 8.53 | 8.33* | 8.00 ↓* | 8.60 | 8.13* | 8.64 ↑ | 8.57 | 8.47 | 0.64 |
| Self-Efficacy | 7.94 | 7.66* | 7.56 ↓ | 8.05 ↑ | 7.67 | 7.95 | 8.04 | 7.78 | 0.49 |
| 21st Century Skills | 6.06 | 5.77 ↓ | 5.97 | 6.52 ↑* | 5.86 | 6.08 | 5.98* | 6.01 | 0.75 |
| Environmental Stewardship (Intentions) | 7.13 | 6.87* | 6.66 ↓ | 7.63 ↑* | 7.09 | 7.38 | 7.18 | 7.21 | 0.97 |
| Actions: Cooperation/ Collaboration | 6.78 | 6.69 | 6.61 ↓ | 7.40 ↑* | 6.73 | 7.22 | 6.82* | 6.86 | 0.79 |
| Actions: School (Positive Behaviors) | 6.84 | 6.76 ↓ | 6.96 | 7.67 ↑* | 6.65 | 7.08 | 6.89* | 6.85 | 0.91 |
| Instances of highest relative outcome (indicated by # of ↑) | 0 | 0 | 0 | 9 | 0 | 3 | 0 | 0 | |
| Instances of lowest relative outcome (indicated by # of ↓) | 1 | 5 | 5 | 0 | 0 | 0 | 0 | 0 | |

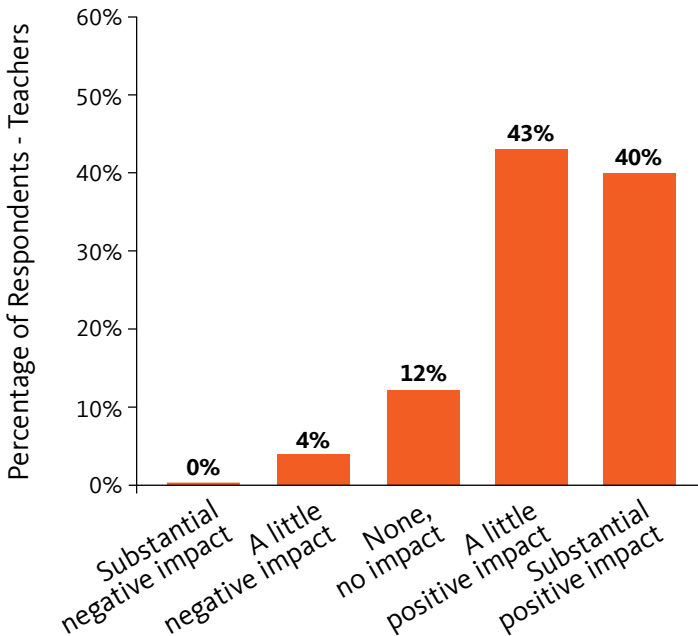
Implication: Results suggest that Asian and Black or African American students may need targeted, culturally responsive support to achieve similar outcomes to their peers. This may include unpacking instruction (e.g., null or hidden curriculum; associated biases) related to the following outcomes: learning, enjoyment and meaning/self-identity for Asian students; place connection and environmental attitudes for Black or African American students.

Section 3.4 - Youth Needing Substantial Supports

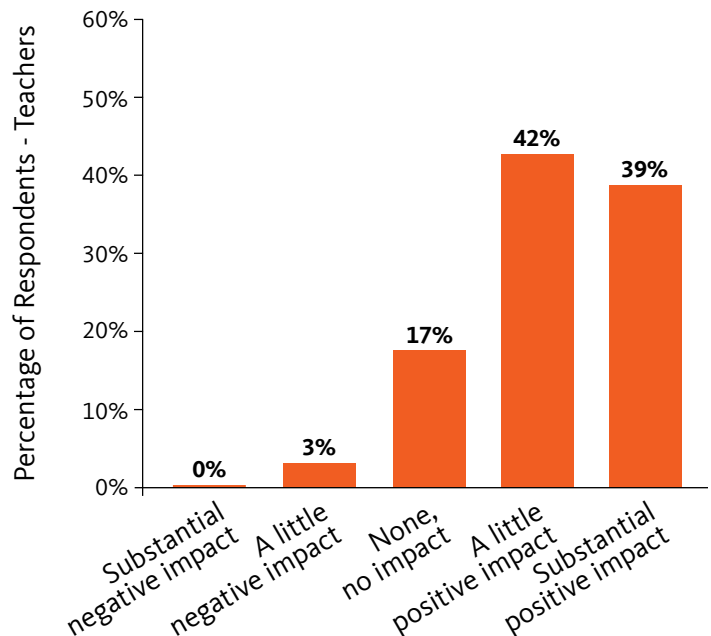
Results indicate that students who need substantial academic and behavioral support were positively impacted by outdoor school. Often students are engaged with entirely different modes of learning/thinking so that typical classroom/school social dynamics are affected, the latter being especially important for students with substantial behavioral needs. Teacher responses (n ≥ 143) from 113 different public and independent schools from at least 49 different school districts indicate:

- ▶ Outdoor school has a positive impact on students who need substantial behavior support.
- ▶ Outdoor school has a positive impact on students who need substantial academic support.

How much and what type of impact does outdoor school have on students who need substantial behavior support?



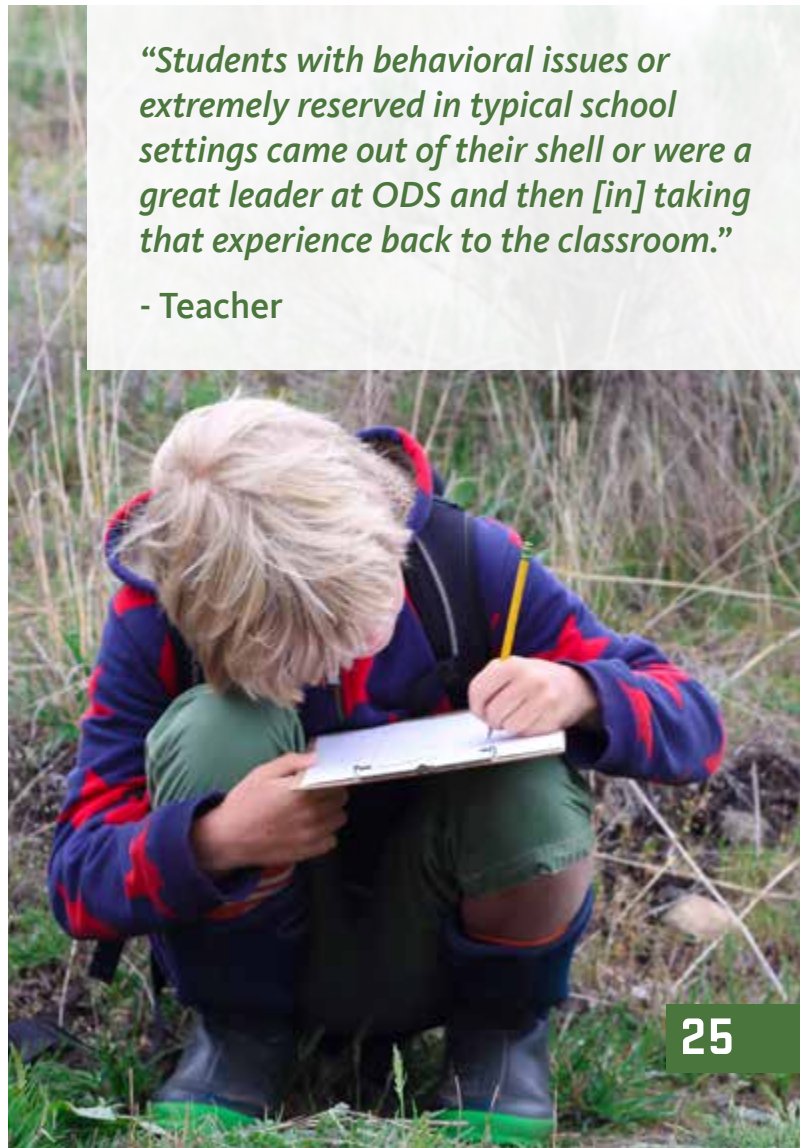
How much and what type of impact does outdoor school have on students who need substantial academic support?



“Students with behavioral issues or extremely reserved in typical school settings came out of their shell or were a great leader at ODS and then [in] taking that experience back to the classroom.”

- Teacher

Implication: Results suggest that outdoor school is effective in supporting students with substantial needs, potentially making outdoor school a transformative event for youth struggling academically or socially in school. These are students who may receive special education.



SECTION 4 - STUDY HIGHLIGHTS: LEGISLATIVE REQUIREMENTS

Legislative requirements were measured with student and teacher data. In some instances, teachers were explicitly asked about outdoor school influence on outcomes identified in legislative language — this was done verbatim. Results indicate that participating outdoor school programs meet legislative requirements identified in Oregon Senate Bill 439. Legislative requirements include educational and behavioral outcomes, program-specific guidelines and governance structure. The results and discussion presented in this section are primarily concerned with educational and behavioral outcomes (e.g., increased student engagement and pride in accomplishment). However, these results are also relevant to program-specific guidelines (grants shall be awarded to outdoor school programs that ... are integrated with local school curricula). Results indicate:

- ▶ Outdoor school promotes school and subject-specific engagement.
- ▶ Students have greater enthusiasm for school and subjects because of outdoor school.
- ▶ Outdoor school has a positive influence on school and subject-specific academic performance.
- ▶ Outdoor school has a positive influence on students' behavior - there are fewer discipline issues.
- ▶ Outdoor school develops students' thinking skills.
- ▶ Outdoor school develops students' communication and collaboration skills.

Section 4.1 - Engagement and Enthusiasm

Engagement and enthusiasm included measuring students interest in school and subject matter and may determine whether or not students pay attention in class, complete their work and apply effort. In short, engagement and enthusiasm may be prerequisites to academic performance in general and connect to students' behavior as well. Teacher responses (n ≥ 143) from 113 different public and independent schools from at least 49 different school districts indicate:

- ▶ Outdoor school has a positive influence on students' interest in and enthusiasm for science, STEM and natural history (related to science).
- ▶ Outdoor school has a positive influence on students' interest in and enthusiasm for food, agriculture and forestry (related to social studies and science).
- ▶ Outdoor school has a positive influence on students' interest in and enthusiasm for sustainability and environmental education (related to social studies and science).
- ▶ Outdoor school has a positive influence on students' interest in and enthusiasm for social studies and geography.
- ▶ Outdoor school has a positive influence on students' interest in and enthusiasm for Oregon studies and multicultural education (related to social studies).
- ▶ Outdoor school has a positive influence on students' interest in and enthusiasm for career and workforce education (related to social studies and transition skills).



Responses from 5th/6th grade students (n ≥ 3310) from 143 different schools and 29 different outdoor school programs indicate:

- ▶ Outdoor school increases students' interest in learning (motivation).

Relevant Legislative Language for Engagement and Enthusiasm

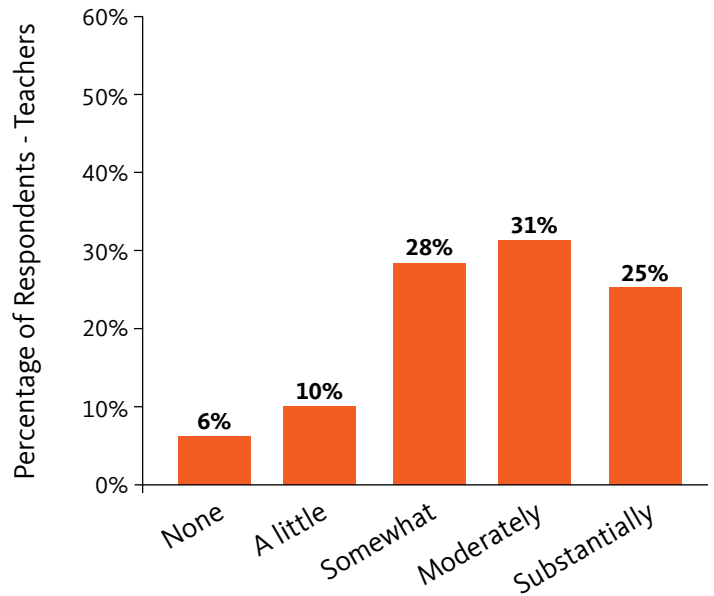
Oregon Senate Bill 439, SECTION 2.

(4) Priority for grants shall be given to outdoor school programs that promote:

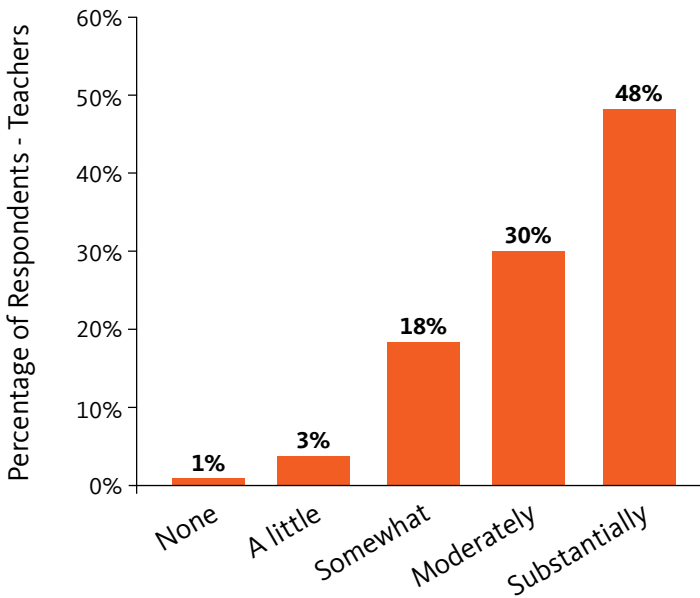
(d) Increased student engagement and pride in accomplishments.

(h) Greater enthusiasm for language arts, math, science and social studies.

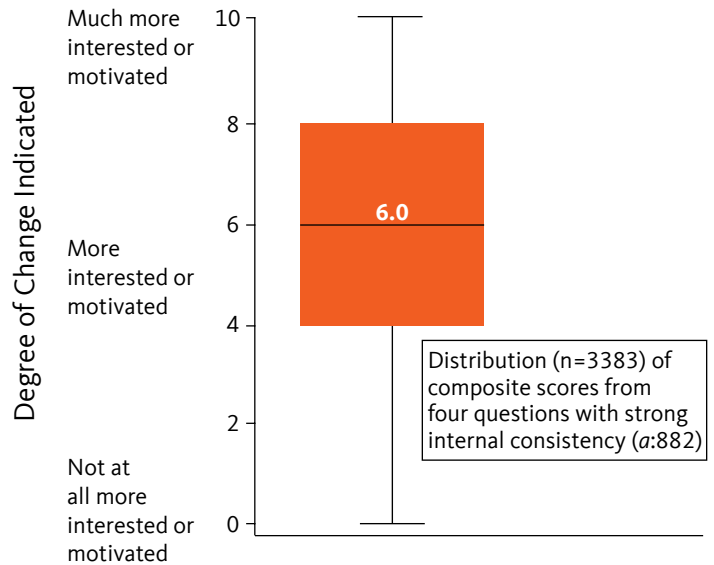
To what degree does outdoor school improve/develop interest & enthusiasm in food/agriculture/forestry?



To what degree does outdoor school improve/develop interest & enthusiasm in science/STEM/natural history?



Change in Students Interest in Learning (Motivation) Resulting from Outdoor School



“This is literally the most fun I have ever had while learning.”

- Student

“I would like to write about Wallowa County in a journal ... and I would not do this if it weren’t for outdoor school.”

- Student

Section 4.2 – Academic Performance

Academic performance is one of the primary metrics of school success. How students perform in middle school classes is strongly connected to graduation rates and workplace success, among many things. Results indicate that outdoor school influences academic performance in several subject areas. Teacher responses (n ≥ 143) from 113 different public and independent schools from at least 49 different school districts indicate:

- ▶ Outdoor school has a positive influence on students’ academic performance in science, STEM and natural history (related to science).
- ▶ Outdoor school has a positive influence on students’ academic performance in sustainability and environmental education (related to social studies and science).
- ▶ Outdoor school has a positive influence on students’ academic performance in food, agriculture and forestry (related to social studies and science).
- ▶ Outdoor school has a positive influence on students’ academic performance in social studies and geography.
- ▶ Outdoor school has a positive influence on students’ academic performance in Oregon studies and multicultural education (related to social studies).

Relevant Legislative Language for Academic Performance

Oregon Senate Bill 439, SECTION 2.

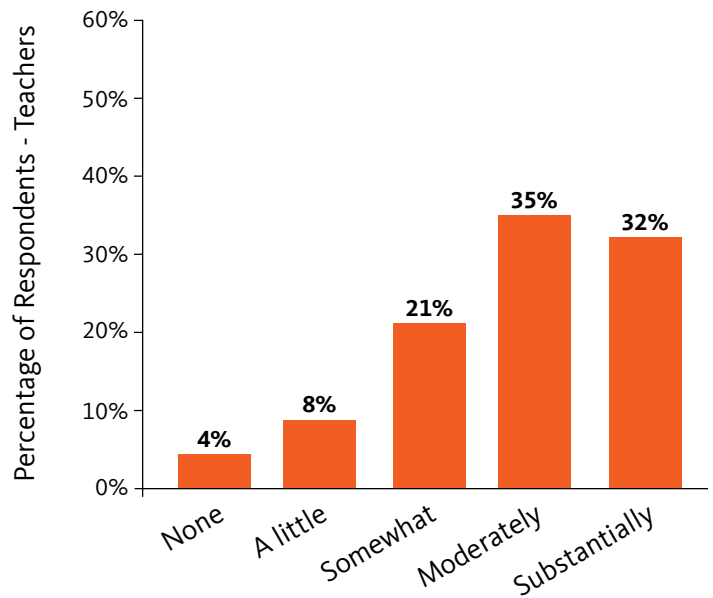
4) Priority for grants shall be given to outdoor school programs that promote:

(a) Higher scores on standardized measures of academic achievement in writing, reading, math, science and social studies.

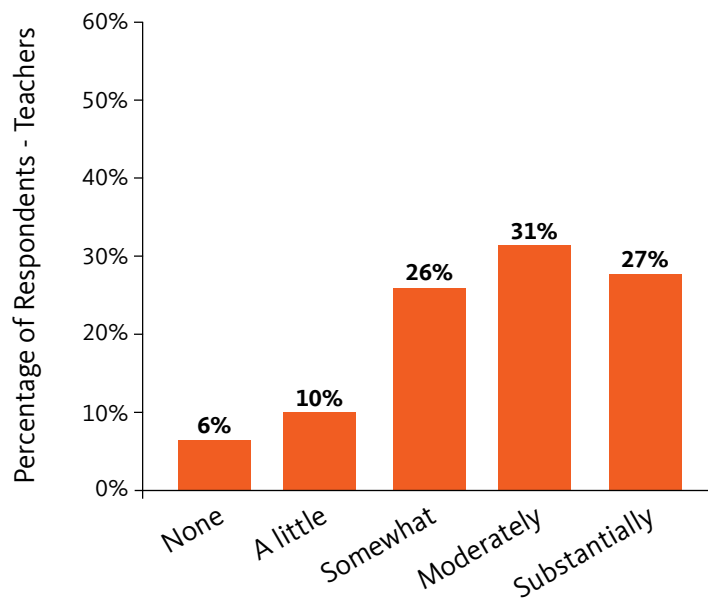
(i) Increased knowledge and understanding of science content, concepts and processes.

(m) Better comprehension of social studies content.

To what degree does outdoor school improve/develop academic performance in science/STEM/natural history?



To what degree does outdoor school improve/develop academic performance in sustainability/environmental ed?



“Outdoor school really changed me in a good way.”

- Student

Section 4.3 – Behavior and Discipline

Behavior and discipline are associated with academic performance. Schools monitor behavior and discipline closely and report discipline to the Oregon Department of Education. Teachers often indicate behavior as one of the most important elements in running an effective classroom. This is especially true for middle school. In short, behavior and discipline are very important. Social Emotional Learning Theory indicates that Self-Management and Responsible Decision Making are among the core competencies (i.e., skills) necessary for students to behave appropriately in schools and communities. These skills include self-reflection, stress management and showing respect for others. Teacher responses (n ≥ 143) from 113 different public and independent schools from at least 49 different school districts indicate:

- ▶ Fewer discipline and management problems occur in classrooms after students attend outdoor school.
- ▶ Outdoor school has a positive impact on students who need substantial behavioral support.
- ▶ Outdoor school helps students develop self-reflection skills.
- ▶ Outdoor school helps students develop stress management skills.
- ▶ Outdoor school helps students develop respect for others.

Relevant Legislative Language for Behavior and Discipline

Oregon Senate Bill 439, SECTION 2.

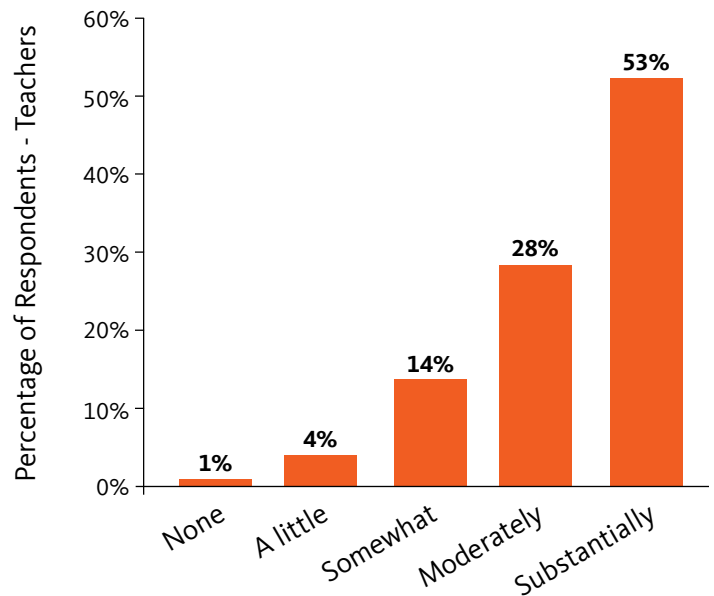
4) Priority for grants shall be given to outdoor school programs that promote:

(c) Fewer discipline and classroom management problems.

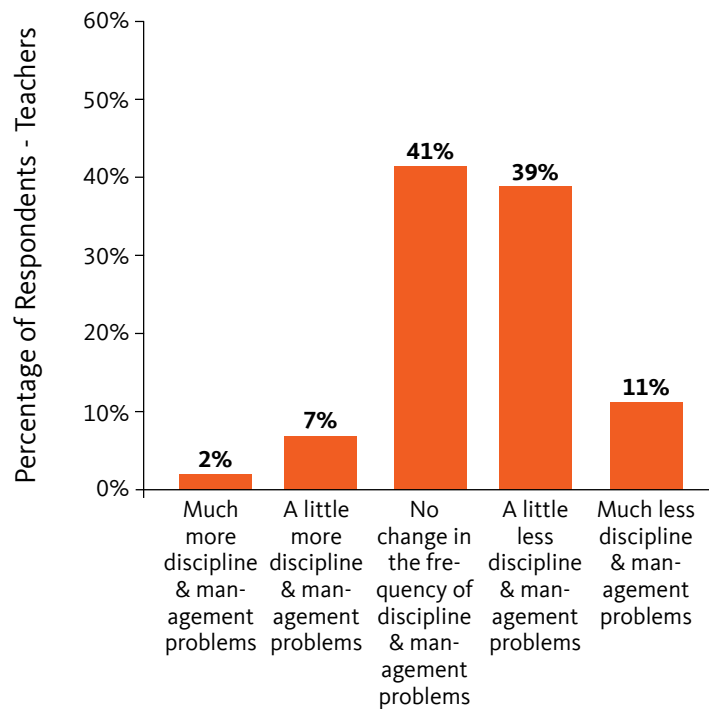
“When I heard about it, I didn’t want to go, but when I got there it felt like I just had a really big family and it’s a family reunion.”

- Student

To what degree does outdoor school improve/develop prosocial, school appropriate behavior?



What impact, if any, did outdoor school have on your students’ behavior? Do students have more or less discipline and classroom management problems in your class after attending outdoor school?



Section 4.4 – Thinking Skills and Competencies

The goals of education are and have been shifting away from providing chunks of knowledge to developing thinking skills and competencies (e.g., Next Generation Science Standards). Thinking skills and competencies cross traditional subject areas and can be applied throughout a learner’s lifetime. The Framework for 21st Century Learning¹² articulates the 4Cs necessary for Learning and Innovation. These include critical thinking and problem solving, creativity and innovation, communication and collaboration. Outdoor school helps students develop such thinking skills. Teacher responses (n ≥ 143) from 113 different public and independent schools from at least 49 different school districts indicate:

- ▶ Outdoor school develops critical, creative thinking and strategic thinking skills.
- ▶ Outdoor school develops judgment and decision-making skills.
- ▶ Outdoor school develops problem-solving skills.
- ▶ Outdoor school develops systems thinking skills.

Relevant Legislative Language for Thinking Skills and Competencies

Oregon Senate Bill 439, SECTION 2.

(2) Grants shall be awarded for outdoor school programs that:

(c) Provide students with opportunities to develop leadership, critical thinking and decision-making skills.

4) Priority for grants shall be given to outdoor school programs that promote:

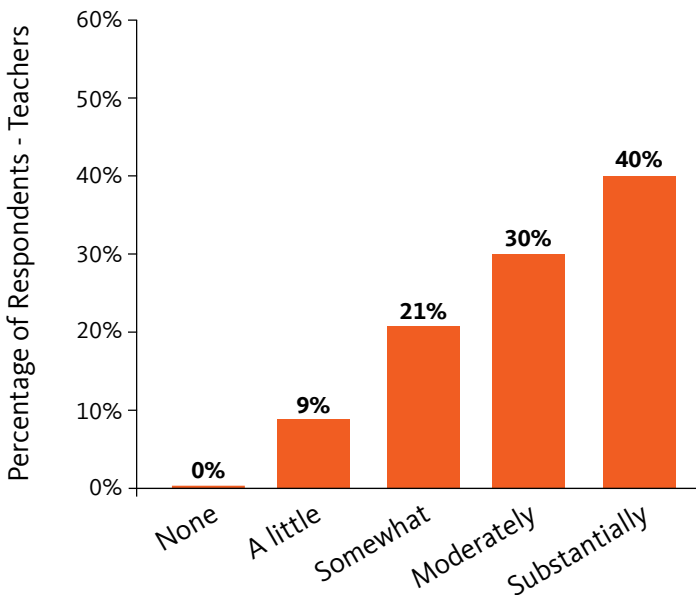
(e) Greater proficiency in solving problems and thinking strategically.

(f) Better application of systems thinking and ability to think creatively.

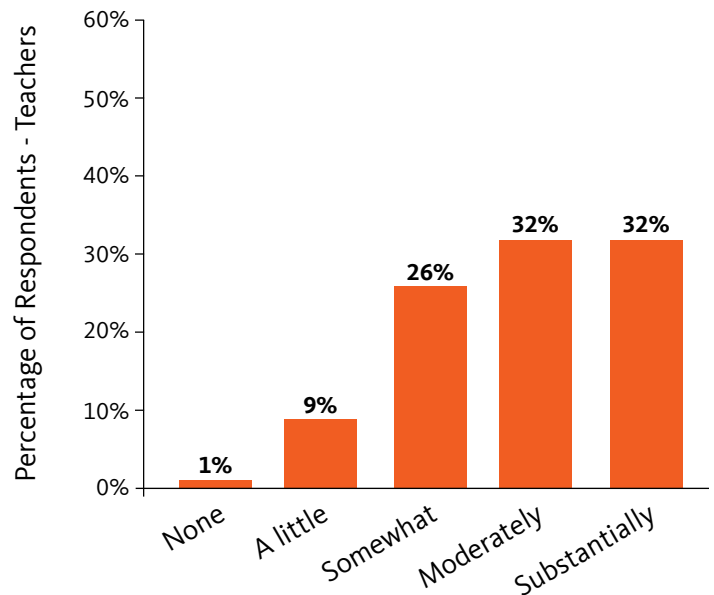
(j) Better ability to apply science and civic processes to real-world situations.

(k) Improved understanding of mathematical concepts and mastery of math skills.

How much does outdoor school help students develop critical thinking skills?



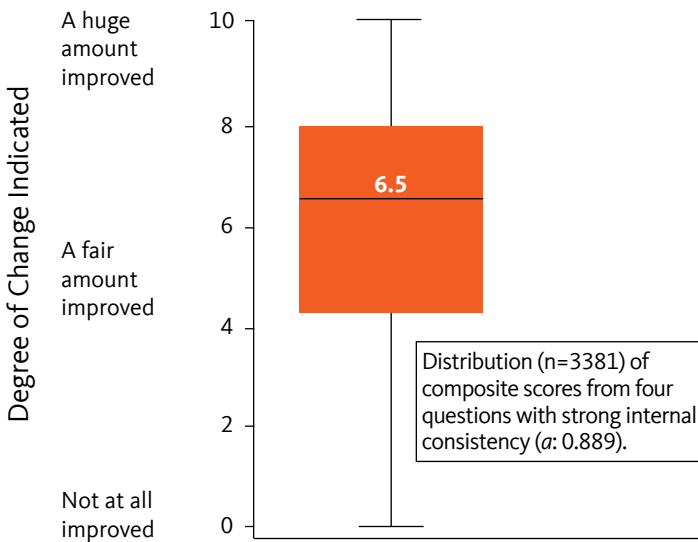
How much does outdoor school help students develop creative thinking skills?



Influence of outdoor school on students' judgment/ decision making, problem solving and systems thinking skills involved several questions posed to teachers for each of these three skills. Corroborating teacher data were student responses (n = 3381) from 143 different schools and 29 different outdoor school programs which indicate:

- ▶ Outdoor school increases students' 21st Century Skills (i.e., civic capacity, problem solving, communication).

Change in Students' 21st Century Skills (Civic Capacity, Problem Solving, Communications) Resulting from Outdoor School



Example questions measuring judgment/decision making, problem-solving and systems thinking skills.

Questions about making judgments and decisions included:

- "To what degree does the outdoor school experience improve your students' ability to...effectively analyze and evaluate evidence, arguments, claims and beliefs?"
- "To what degree does the outdoor school experience improve your students' ability to...synthesize and make connections between information and arguments?"

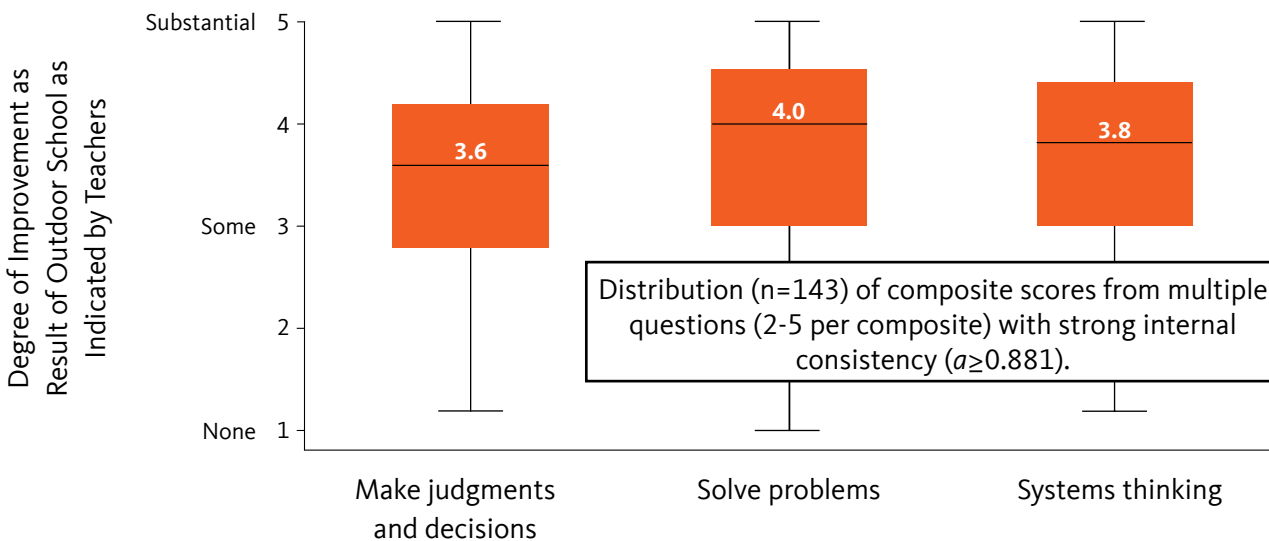
Questions about solving problems included:

- "To what degree does the outdoor school experience improve your students' ability to...solve different kinds of non-familiar problems in both conventional and innovative ways?"
- "To what degree does the outdoor school experience improve your students' ability to...identify and ask significant questions that clarify various points of view and lead to better solutions?"

Questions about systems thinking included:

- "To what degree does the outdoor school experience improve your students' ability to...create solutions for systems that are not in balance?"
- "To what degree does the outdoor school experience improve your students' ability to...present the complex inner workings of a system in a simple and succinct way?"

Improving and Developing Students' Cognitive Skills



Section 4.5 – Interpersonal (Communication and Collaboration) Skills and Competencies

Students’ capacity to communicate and collaborate with one another has a strong influence on their academic success and behavior in school. These skills affect their success in the workplace and communities. Oregon Department of Education’s nine essential skills include active listening, clear speaking and teamwork skills. Further, how students communicate and collaborate has significant influence on EDI. Teacher responses (n≥143) from 113 different public and independent schools from at least 49 different school districts indicate:

- ▶ Outdoor school helps students develop respect for others.
- ▶ Outdoor school develops teamwork and leadership skills.
- ▶ Outdoor school helps students appreciate diversity.
- ▶ Outdoor school develops empathy.

Relevant Legislative Language for Interpersonal Skills and Competencies

(2) Grants shall be awarded for outdoor school programs that:

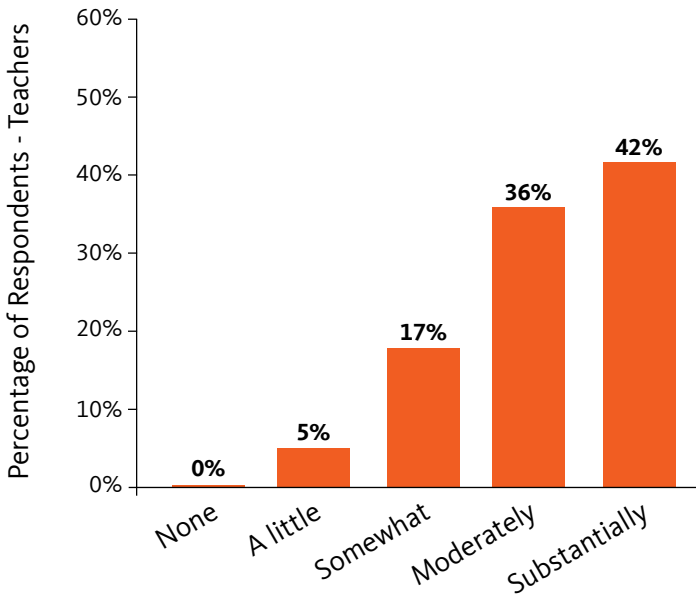
(c) Provide students with opportunities to develop leadership, critical thinking and decision-making skills.

4) Priority for grants shall be given to outdoor school programs that promote:

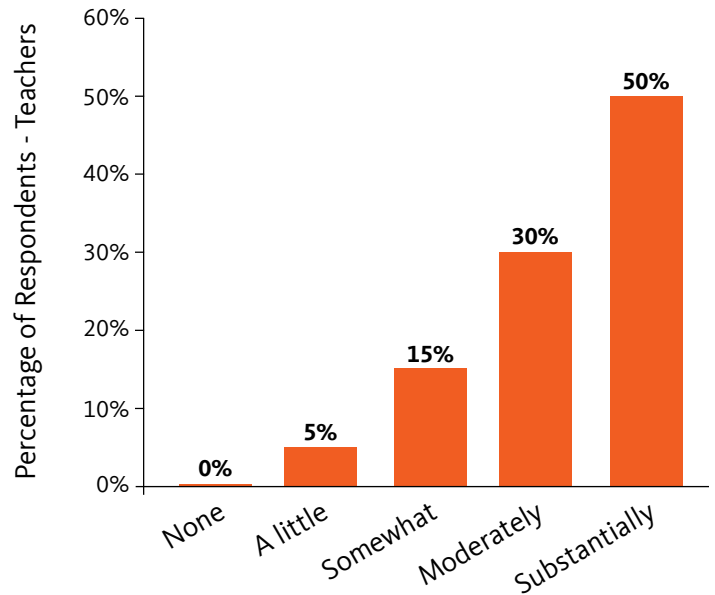
(b) Greater self-sufficiency and leadership skills

(g) Improved communication skills and enhanced ability to work in group settings.

How much does outdoor school help students develop respect for others?

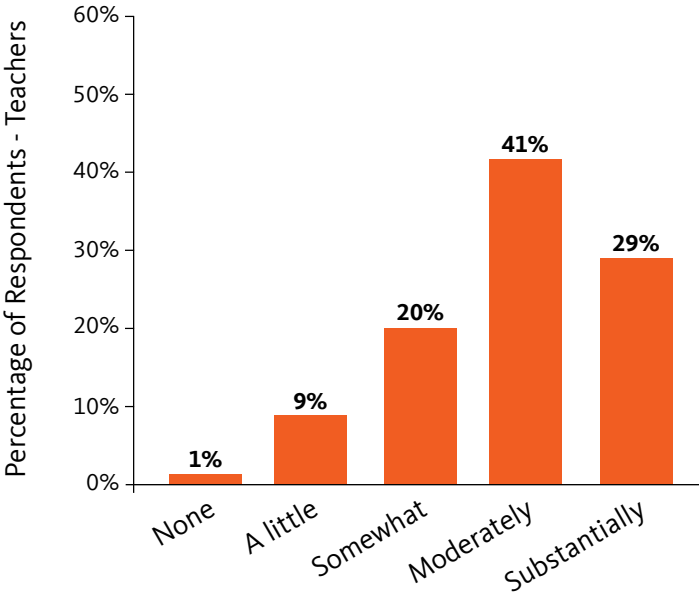


How much does outdoor school help students develop teamwork skills?





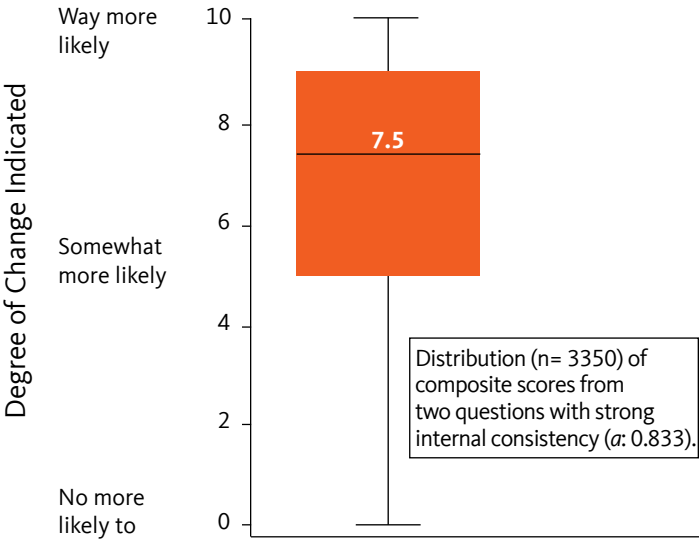
How much does outdoor school help students develop leadership skills?



Corroborating teacher data were student responses (n = 3350) from 143 different schools and 29 different outdoor school programs which indicate:

- ▶ Outdoor school made students more likely to cooperate and collaborate.

Change in Students' Likelihood to Engage in Collaborative and Cooperative Behaviors Resulting from Outdoor School



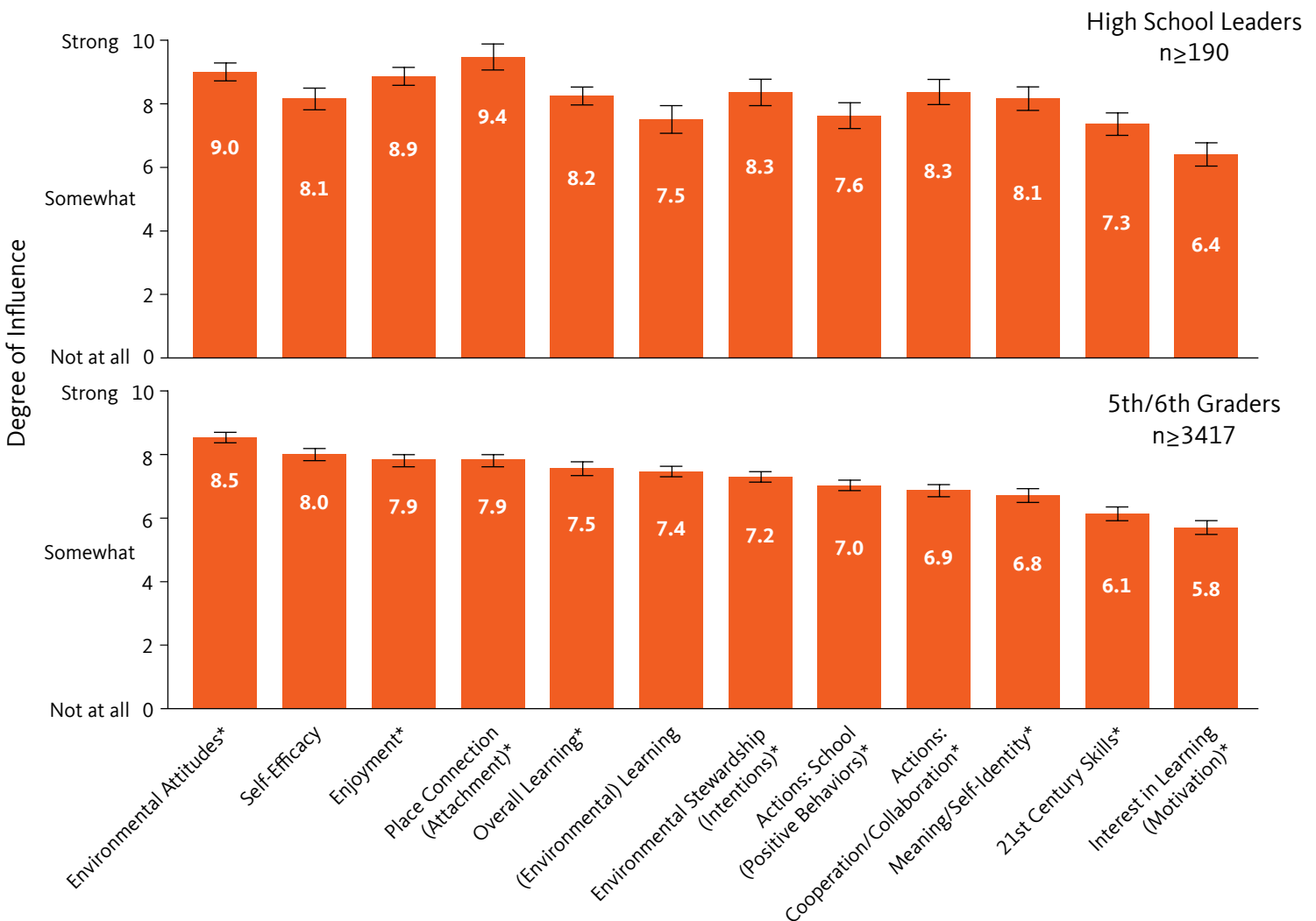
SECTION 5 - STUDY HIGHLIGHTS: HIGH SCHOOL LEADERS

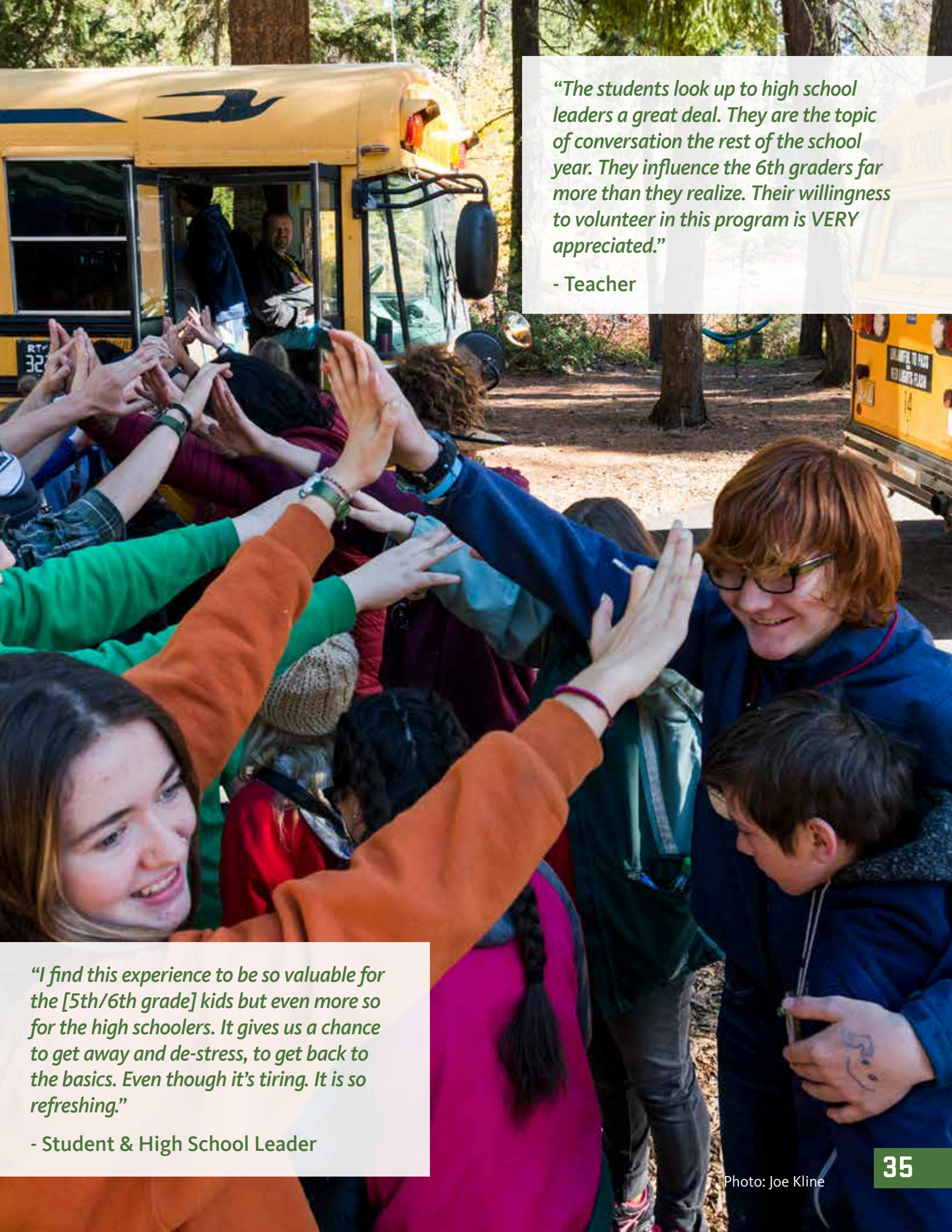
Many outdoor school programs work with high school leaders. These high school students are provided support and training from outdoor school staff/teachers and placed in a leadership role where they help facilitate 5th/6th grade students' outdoor school programs. Considered broadly, there are dual programming objectives for working with high school leaders. First, high school students benefit from participating in such programs through positive educational outcomes. Second, programs benefit from having high school students involved, in terms of capacity and 5th/6th grade student outcomes. This section briefly discusses some of these benefits.

All of the average outcomes for high school leaders measured somewhat to strong. This suggests that involving high school leaders has very strong benefits for these students. Further, when comparing average outcomes for high school leaders with 5th/6th grade students there were statistically greater outcomes for high school leaders in 10 of 12 outcomes (e.g., 21st Century Skills, $Z = 47.234$, $p = 0.00$). Initial results suggest that high school leaders do, on average, benefit from programming more than 5th/6th grade students do from programming. They build upon their initial outdoor school experience.

Program Outcomes Across Grade Band

Average values shown with 95% confidence intervals for composite scores of each outcome for 5/6th grade and high school students. Outcomes (x-axis) marked with an asterisk denote statistically significant differences ($p \leq 0.05$) were found.





“The students look up to high school leaders a great deal. They are the topic of conversation the rest of the school year. They influence the 6th graders far more than they realize. Their willingness to volunteer in this program is VERY appreciated.”

- Teacher

“I find this experience to be so valuable for the [5th/6th grade] kids but even more so for the high schoolers. It gives us a chance to get away and de-stress, to get back to the basics. Even though it’s tiring. It is so refreshing.”

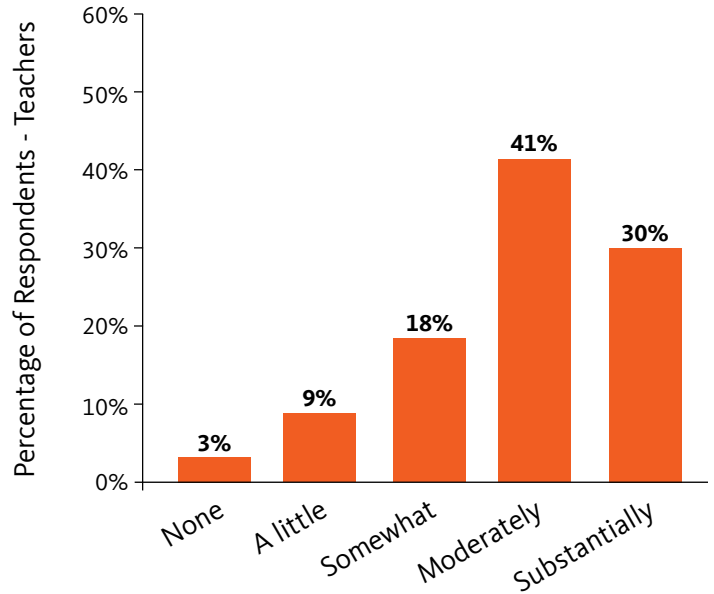
- Student & High School Leader

SECTION 6 - STUDY HIGHLIGHTS: SCHOOLS AND COMMUNITIES

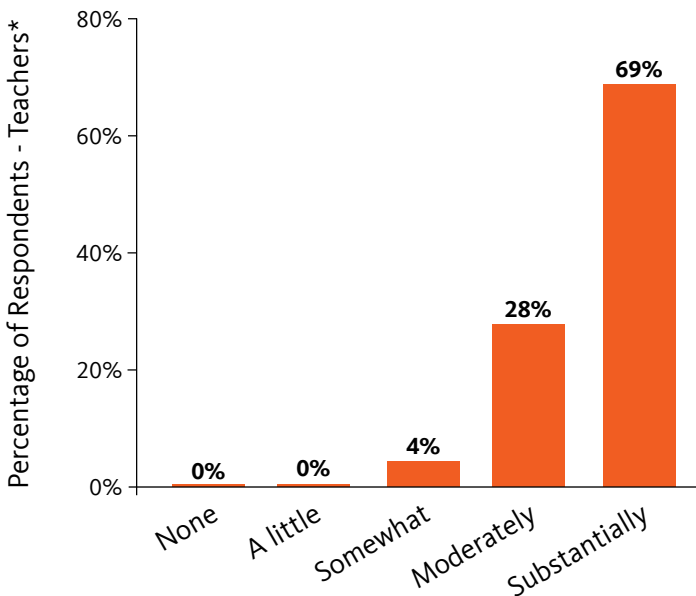
School, teacher and community involvement in outdoor school is both strong and essential for student success. Results indicate that communities are overwhelmingly supportive of outdoor school. Most teachers are very involved with outdoor school; they fill many different roles relative to the outdoor school experience. Teacher responses (n=143) from 113 different public and independent schools from at least 49 different school districts indicate the most frequent roles that teachers fill are:

- ▶ Discipline support (86% of teachers)
- ▶ Family and school liaison (66% of teachers)
- ▶ Publicity/parent information (64% of teachers)
- ▶ Evaluation and assessment (54% of teachers)
- ▶ Procuring materials/supplies (52% of teachers)
- ▶ Student transportation (47% of teachers)
- ▶ Recruitment of parents and volunteers (42% of teachers)

While you were at outdoor school how involved were you with activities and instructions?



Overall, and in your opinion, how supportive is your community of outdoor school?



* Note scale on Y-axis (range: 0-80%) is different from that on all other similar graphs (range: 0-60%) in this report.



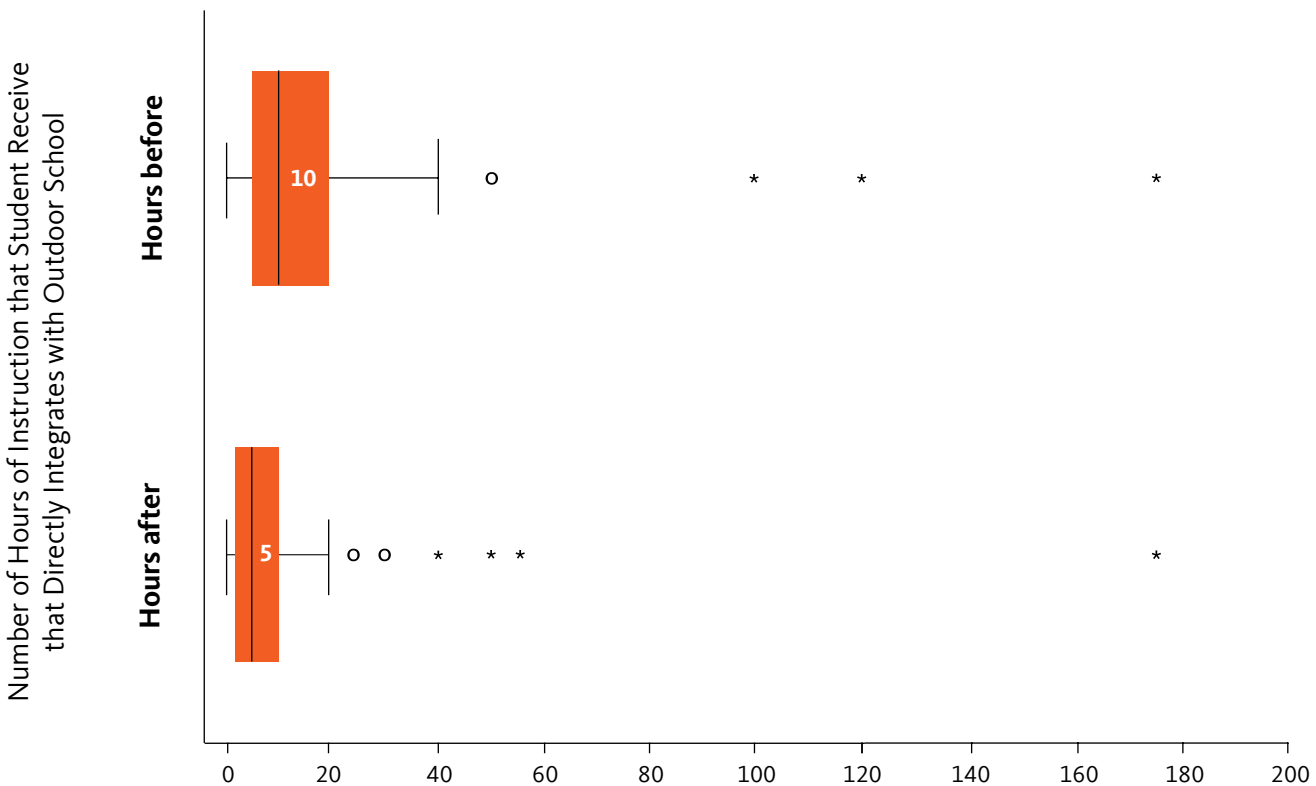
Photo: Friends of Outdoor School

Results show that the outdoor school experience is often marginally integrated with regular activities and instruction:

- ▶ Half of the teachers indicated students received between 0 and 6 hours of classroom instruction that was directly integrated with the outdoor school experience before attending outdoor school.
- ▶ Half of the teachers indicated students received between 0 and 4 hours of classroom instruction that was directly integrated with the outdoor school experience after attending outdoor school.
- ▶ A small number of teachers (<10%) indicated substantial classroom to outdoor school integration (i.e., 30+ hours of classroom instruction before or after attending outdoor school).



How integrated is outdoor school with instruction?



Implication: Results suggest that outdoor school is often an isolated learning experience not well-integrated with the classroom - a missed opportunity for maximizing student learning given the transformative nature of outdoor school.

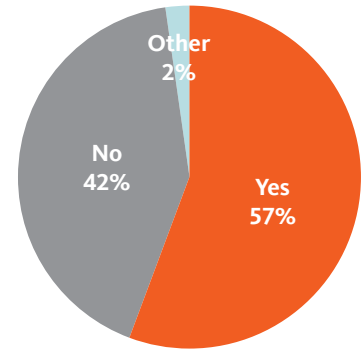
SECTION 7 - SUCCESS STORIES

Outdoor school is often observed as transformative. Indeed many 5th/6th grade students go on to be high school leaders/counselors, and later on, outdoor school instructors/natural resource professionals because of their childhood experiences at outdoor school. The 5th/6th grade student responses (n ≥ 3310) from 143 different schools and 29 different outdoor school programs overwhelmingly indicate that the outdoor school experience is near excellent. Further, more than half of the students (57%) indicated that because of outdoor school they intended to do something different with their life. Examples of life choices students provided in the 2019 survey included:

- ▶ “I will spend more time outdoors, to experience nature, to learn more, and help protect it.”
- ▶ “I want to work and do things in a community now because this has taught me to appreciate it is super fun doing things with other people, so I am going to encourage and include others.”
- ▶ “I’ve always wanted to be a hunting guide, but now I want to be a hunting guide even more.”

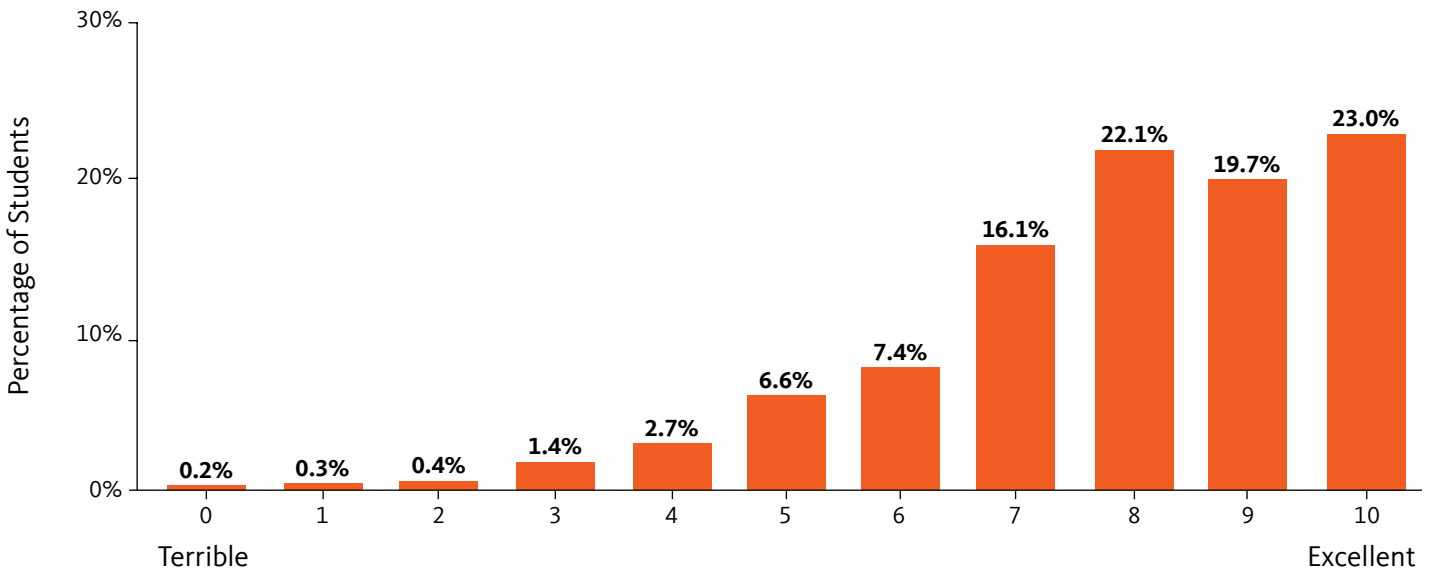
As a result of this experience, do you intend to do anything different in your life?

- ▶ “I will be more self-aware.”
- ▶ “I will get my grades up.”
- ▶ “I will talk to more people and not be scared.”



- ▶ “I’m going to try to get off my phone more often and go camping, hiking and enjoy the outdoors more often. I’m going to get out of the city and go to the wilderness.”
- ▶ “I just feel more motivated to protect marine life. stop using plastic, and reverse climate change.”
- ▶ “Now I know to pick up every bit of trash or plastic I see, and now I know a lot more about birds, animals, soil, plants and water. It was probably one of the best experiences in my life.”

**Overall Student Enjoyment:
“How would you rate the experience on a scale of 0 to 10?”**



Teacher responses about the successful elements and nature of outdoor school included:

- ▶ “I felt like my students really grew in ways I wasn’t expecting. They are able to empathize more with others and seem more mature when returning to school. They definitely bonded as a group and are more supportive of each other. It was very structured and I felt supported as a teacher. We loved every minute of it. The kids are only sad in that they wish they were still there. Thank you!!”
- ▶ “[This outdoor school] is a great place full of life and love. I know that the staff are gonna improve so many kids’ lives.”
- ▶ “I think every 6th grader should be able to come.”
- ▶ “I would like to say that outdoor school has changed me and I would like to thank my student leader ...for my experience.”
- ▶ “This was my first year attending. My students loved it and were engaged. Their written reflections afterward indicated that their experience was profound and meaningful.”
- ▶ “It was incredible. My students still talk about it almost daily.”



SECTION 8 - AREAS OF CONCERN AND OPPORTUNITIES FOR GROWTH

Outdoor school, as with all educational programs, can be improved. Results indicate that there are opportunities for growth. Both teachers and students discussed issues of concern or frustration. Student concerns were generally vague (e.g., “This place is wack”). However, there were some responses focused on a concern or issue with food (e.g., “Maybe have a bit more vegetarian and GF/ dairy free options” and “I was hungry all the time”). Teacher concerns were generally more thorough and considered collectively, demonstrate some complex issues. To date, there are six issues that continue to arise. They are:

- ▶ Concern/issue with instruction and safety related to gender identity.

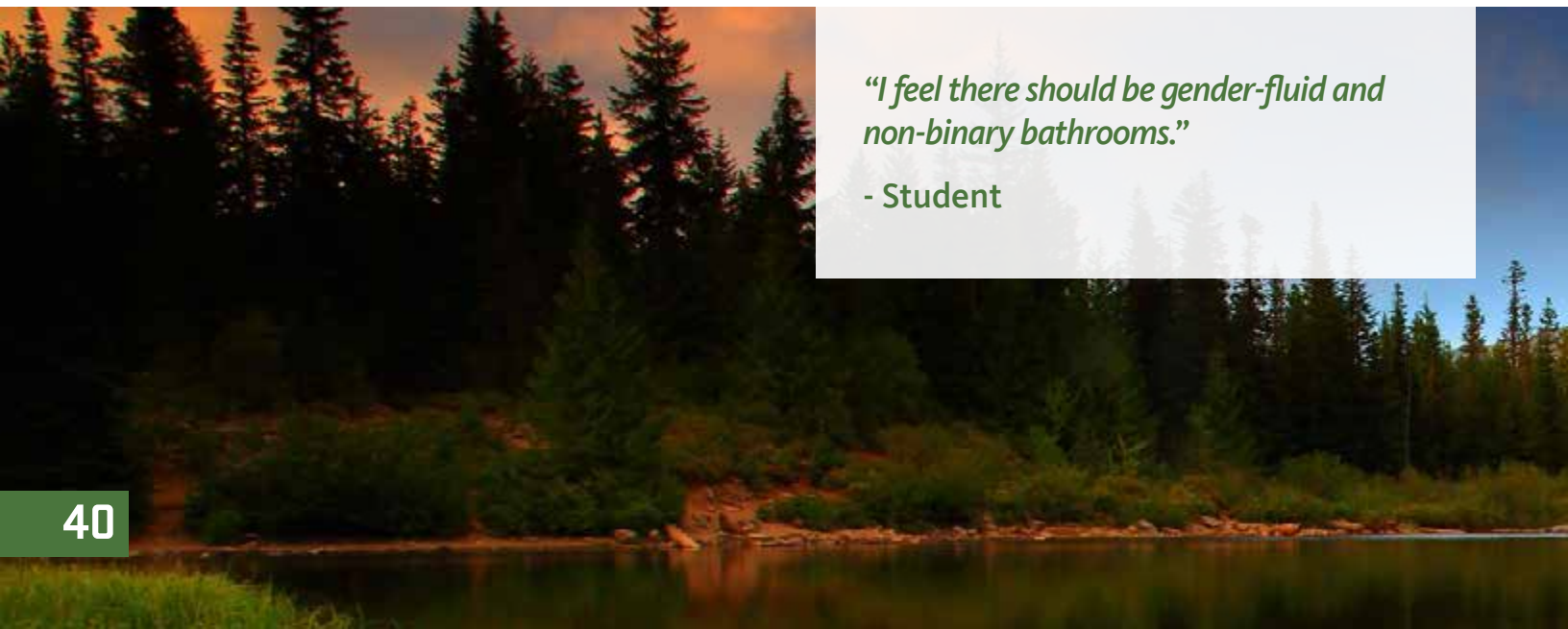
Students (and teachers) with a variety of experiences and beliefs about gender are immersed (generally) in an overnight experience. Both overnight and day accommodations may include gender-specific sleeping settings and bathroom facilities. Students identifying as non-binary or transgender (i.e., non-dominant male/female) can feel vulnerable in these settings. Not all students (or adults) are inclusive-minded and raise issues about trans people in one setting or another. To provide guidance, Oregon Department of Education (ODE) asserts that students have a legal right to use bathrooms and locker rooms (for extracurricular activities) of their gender identity and that preventing such use would be discrimination.¹³ ODE also advises school districts to provide comprehensive sexuality education and recognize that these students are often targeted with physical violence.

- ▶ Concern/issue related to support for and use of high school leaders.

A substantial proportion of outdoor school programs work with high school leaders. While participation in this leadership program provides clear and strong benefits (i.e., outcomes) for these students, there are some issues with recruitment. Specifically, not all high school leaders are given academic credit for participation, nor are schools consistently and easily directing high school students to this opportunity. Schools and teachers must let families know that participating students miss a week or more of class in order to participate. Compensation (make-up) and validation (extra-credit) activities used for students in extracurricular, enrichment, medical or discipline-related situations may provide a suitable model.

- ▶ Concern/issue with financial resource allocation.

Oregon’s education system is, by most accounts, underfunded. With this in mind, some teachers raised concern about extra costs associated with outdoor school. Busses, lodging, additional staff and extra planning time for teachers all cost money. Some schools hold fundraisers and charge additional funds for their students to attend outdoor school. Further, outdoor educators and facilities are typically paid less for commensurate services than traditional counterparts (teachers or conference venues). This points to issues of staffing retention and site capacity.



“I feel there should be gender-fluid and non-binary bathrooms.”

- Student

- ▶ Concern/issue with academic value.

Outdoor school involves a variety of activities that are not always considered as academic. Some of them are social, creative, interpersonal or entirely unstructured. Some students (and adults) may, for example, consider creative expression to be lacking when compared to inquiry; there is a similar concern with open or experiential learning. However, and counter to this perception, others assert that open or experiential learning can be transformative for students (and adults). Indeed there is a growing body of evidence supporting the value (e.g., Social Emotional Learning, 21st Century Skills) of learning in novel environments (e.g., Outdoor Education).

- ▶ Concern/issue about science only being taught at outdoor school and not in a regular school setting.

Instruction at outdoor school often focuses on science. Focusing on science is not a legislative requirement, nor is it the full extent of outdoor schools' subject matter. On the other hand, some grade schools and middle schools provide very little to no science education to students. For some communities, outdoor school is considered as the "week where we do science." Further, 5th and 6th grade science standards for Oregon; specifically the Disciplinary Core Ideas for Next Generation Science Standards¹⁴, go beyond Life and Earth Sciences, which are often associated with outdoor learning. They include engineering and physical science and when these standards are considered collectively, they are too much material for outdoor school programs to cover in a week.

- ▶ Concern/issue with staff expertise and capacity.

Outdoor school staff (and high school counselors) have varying degrees of subject matter and pedagogical expertise. Outdoor school staff are often balancing a variety of roles, from washing dishes to providing instruction and ensuring student safety. Partnering organizations also provide support. For example, an outdoor school may have a subject-matter expert (e.g., biologist) teach lessons although this person has limited pedagogical skills. Some outdoor school programs are mainly facilitated by specialized providers, while others are facilitated by students' regular teachers.

- ▶ Concern/issue with accessibility, inclusion and capacity for serving students and staff with disabilities.

A transformative experience at outdoor school is for everyone, regardless of their ability. However a majority of outdoor education facilities are camp settings and not fully accessible. Similarly, some programs are not prepared to support students with severe emotional, behavioral or cognitive needs. As a result students with medical, physical, emotional, behavioral and cognitive needs may be excluded from attending outdoor school with their peers. They may also have a negative experience. There are however specialized facilities and programs that are able to support students with these types of needs. Moreover, many of these students could be successfully supported with their classmates and at their communities' outdoor school facility/program provided adequate planning and collaboration, which occurs at some programs. A specialized facility/program is not always necessary. Students' special education (Individualized Education Plan) and/or Section 504 teams would need to collaborate with their respective outdoor school facility/program. Adequate time for planning and establishing appropriate accommodations and modifications is necessary. Finally, additional specialized facilities/programs are needed for students with severe needs that require alternative outdoor school placements. Students' Special Education and/or Section 504 teams must be aware of these options when making placement decisions.



SECTION 9 - RECOMMENDATIONS

The following recommendations are based on results from all elements of this evaluation project including initial investigation, pilot study, teacher and student surveys, community engagement and dissemination. Outdoor school is a personal, community and statewide endeavor. It is supported and implemented by many entities including schools, communities, providers and a broad network of partners. Recommendations are offered generally and to all of these audiences. They are neither comprehensive, nor exclusive of existing recommendations of best practice in the broad field of education.

EQUITY IN OUTDOOR SCHOOL

- ▶ Provide responsive, inclusive, safe and sustaining instruction, training and support relevant for students with non-binary gender identities.
- ▶ Address community concerns around gender identity and continue to assert gender equity.
- ▶ Provide responsive, inclusive, safe and sustaining instruction, training and support relevant for students from all racial and ethnic backgrounds; consider targeted support to increase equity.
- ▶ Provide responsive, inclusive, safe and sustaining instruction, training and support relevant for students with different abilities, particularly those with access needs, on Section 504 Plans or receiving Special Education; consider targeted support to increase equity. Supports may include magnet outdoor school programs, an assistive technology lending library or specially designed instruction from special education teachers.
- ▶ Consider and specifically address elements of concern about the outdoor school experience (e.g., overnight accommodations or universal access in a remote setting) when developing or renewing policy and legal guidelines at the state and/or local level.

SCHOOLS AND INSTRUCTION

- ▶ Further integrate the outdoor school experience with the classroom. Provide relevant, rigorous and supportive instruction and materials for the classroom to maximize the impact of outdoor school on student learning.
- ▶ Collaborate, develop and celebrate partnerships. Teachers, community groups, natural resource providers, businesses and nonprofits provide substantial support, fill many roles and enhance the outdoor school experience.
- ▶ Target instruction, materials and supports to promote thinking (e.g., problem solving) and interpersonal skills (e.g., collaboration) which are universal and promote success across typical designations of subject areas (e.g., science or mathematics).

EVALUATION

- ▶ Utilize existing evaluation tools (e.g., common measurement system described here and instructional resource self-evaluation tool) in conjunction with any program-specific evaluation for summative and formative purposes. Track annual progress on outcomes and instructional resources.
- ▶ Participate in professional learning/development activities, including those activities directly tied to evaluation (e.g., outcome-focused, evidence-based workshops).
- ▶ Generate, based on diverse stakeholder input, a precise list of recommendations for each of the measured outcomes (3-5/outcome) that may help an outdoor school program improve its ability to develop each specific outcome, as needed and based on program-specific evaluation.



“Outdoor school can be one of a series of transformative experiences with profound outcomes related to career paths, civic engagement, environmental ethics and simple happiness. My journey included experiential outdoor education in public school and higher education, working at an outdoor school and two terms with AmeriCorps. These experiences set me on a path to my current work leading the Office of Outdoor Recreation, furthering all Oregonian’s connections to the outdoors.”

- Cailin O’Brien-Feeney, Director
Oregon Office of Outdoor Recreation

SECTION 10 - APPLICATIONS: AN EVALUATION CYCLE FOR OUTDOOR SCHOOL

The evaluation project described here, *Outdoor School for All! Diverse Programming and Outcomes in Oregon*, occurs in conjunction with and support of several elements of the OSU Extension Outdoor School program. This includes targeted trainings, a conference, self-evaluation tools and a mentorship program. Quality evaluation is cyclical, occurring regularly over time. It informs learning and instruction. It is directed towards growth and change. Culturally responsive evaluation is based on examination of inputs, outcomes and impacts through lenses in which participants' culture is an important factor. Issues of race, power and privilege are respectfully centered. This includes lenses of evaluators, outdoor school providers and students. Bidirectional exchanges among all parties occurs.¹⁵ This section first puts this culturally responsive evaluation project in context with corresponding training activities. Then, all planned evaluative efforts are discussed, including how they align, relate to training activities and move towards a big goal (impact): Every student in Oregon has a transformative outdoor school experience, one that is impactful and high-quality.



Photo: Joe Kline

Section 10.1 - Applying Student Outcomes Evaluation

A primary goal in evaluating student outcomes is to support programs in achieving better and more equitable outcomes. Therefore, this evaluation (i.e. common measurement system) will be made biennially in conjunction with ongoing opportunities for professional learning. These learning opportunities include:

- ▶ An equity in outcomes - focused evidence-based workshop
- ▶ Action planning (occurs within a workshop)
- ▶ Evaluation partners (facilitated in workshop)
- ▶ Evaluation - related consultation

Learning opportunities are provided to support outdoor school program providers as they implement and improve their respective programs. The student outcomes evaluation, learning opportunities and programs' instruction are all directed toward a big goal (impact): Every student in Oregon has a transformative outdoor school experience, one that is impactful and high-quality. Considered collectively, this is one thread within a Culturally Responsive, Design-Based Evaluation, Reflection and Instruction Model for Oregon Outdoor Schools (see figure on page 47).

Outdoor school program providers receive program-specific evaluation reports (some providers administer several programs) which show program and state

averages for all outcomes. Evaluation reports will be made on a biennial basis (2019, 2021, 2023) and show results over time. These private reports are shared directly with individual program providers and designed to support both their annual reporting needs and program improvement/development (as discussed here). Reports will NOT be used as a punitive measure to funding and will only be shared with OSU Extension Service Outdoor School program with consent from that outdoor school provider.

Results also inform efforts of the OSU Extension Service Outdoor School program. The implications discussed here, which include issues of gender and racial equity, are, for example, priorities of statewide efforts. These efforts are informed by evaluation results. Further, *Outdoor School for All! Diverse Programming and Outcomes in Oregon*, is an active project which is continuously revisiting and refining its methods in order to best support Outdoor School for All, with special attention to the word “All”. As previously indicated, results from this study help improve the common measurement system. For example, an outcome of outdoor school, critical equity consciousness, has emerged as relevant and important. This outcome will likely be evaluated in future surveys “Likewise, teachers will be asked about the impact of outdoor schools on students with substantial physical needs, in addition to questions about academic and behavioral needs that are already asked.” Additionally, results from a provider and facilities survey will be included in future iterations of this evaluation report. This may include analyses of the influence of programming elements (e.g., duration of program) on student outcomes; perhaps suggesting some best practices at a statewide level.

Section 10.2 – Application and Alignment of Several Evaluative Efforts

This evaluation project, *Outdoor School for All! Diverse Programming and Outcomes in Oregon*, is one of several ongoing evaluative efforts within the OSU Extension Outdoor School program. Each of these evaluative activities/supports are aligned and occur in conjunction with activities/supports for professional learning. Equity is central throughout the process and issues of race, power and privilege are respectfully centered in all activities/supports. Existing and forthcoming evaluative activities/supports include:

- ▶ Biennial evaluation of student outcomes (project discussed in this report)
- ▶ Instructional resource self-evaluation tool
- ▶ Racial equity and cultural responsiveness self-evaluation tool
- ▶ Special education and access self-evaluation tool
- ▶ High school leaders inquiry

It is important to note that additional summative evaluation (e.g., an Outdoor School Annual Report) exists, yet is not addressed in relation to learning activities.

Photo: Joe Kline



The opportunities for professional learning, ongoing and forthcoming, which are connected to evaluative efforts and center on EDI, include:

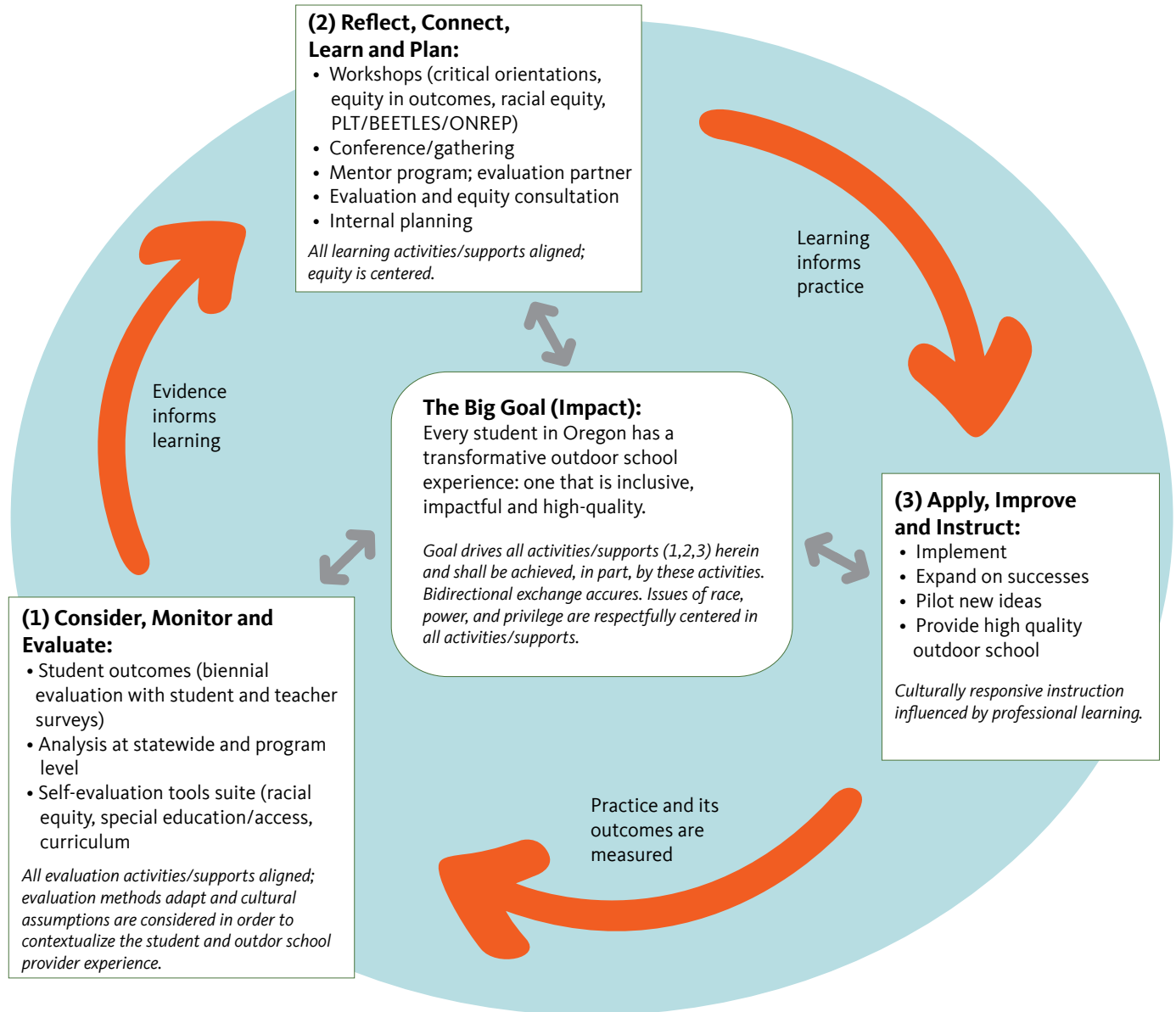
- ▶ Critical Orientations: Indigenous Studies and Outdoor Education (involves a workshop)
- ▶ An outcomes-focused, evidence-based workshop
- ▶ Trainings from partner organizations (Project Learning Tree, BEETLES Project, Oregon Natural Resources Education Program)
- ▶ A sites and providers gathering (i.e., Oregon outdoor school-specific conference)
- ▶ A mentorship program
- ▶ Action planning (occurs within workshops)
- ▶ Evaluation partners (facilitated in workshop)
- ▶ Consultation services (evaluation-specific, racial equity-specific and accessibility-specific)

These reflection, connection, learning and planning opportunities are provided to support outdoor school program providers as they implement and improve their respective programs. Similarly, these opportunities support the OSU Extension Outdoor School program in implementing and improving its program, as activities/ supports encourage bidirectional exchange among participants. All activities/supports, taken collectively or from individual participants, are directed toward and driven by a big goal (impact): Every student in Oregon has a transformative outdoor school experience, one that is impactful and high-quality. This represents a Culturally Responsive, Design-Based Evaluation, Reflection and Instruction Model for Oregon Outdoor Schools.



Culturally Responsive, Design-Based Evaluation, Reflection and Instruction for Oregon Outdoor Schools

Evaluation is based on examination of outcomes and impacts through lenses in which participants' culture is important factor. Issues of race, power, and privilege are respectfully centered. Includes lenses of evaluator, outdoor school providers, and students. Bidirectional exchange among participants occurs. Evaluation, learning and teaching activities/supports regularly change/adapt in response to participants' culture; directed to equity (Askew et al. 2012).



This figure connects/aligns the many evaluative and reflective activities/supports within the Oregon Outdoor School program, all of which are designed to support schools and outdoor school providers meet the big goal: Every student in Oregon has a transformative outdoor school experience: one that is inclusive, impactful and high-quality. Figure shows iterative, multi-year process (i.e. evaluation cycle) with three main steps: (1) evaluation activities/supports available, (2) equity centered professional learning activities/supports available which are explicitly connected to evaluation efforts and (3) culturally responsive outdoor school programming connected to professional learning and several evaluative activities/supports.



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- 3 Oregon Senate Bill 439 <https://olis.leg.state.or.us/liz/2015R1/Downloads/MeasureDocument/SB439/Enrolled>
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- 14 Oregon State Board of Education adopted the Next Generation Science Standards in 2014 <https://www.nextgenscience.org/>
- 15 Askew, K., Beverly, M. G., & Jay, M. L. (2012). Aligning collaborative and culturally responsive evaluation approaches. *Evaluation and Program Planning*, 35(4), 552-557

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For Additional Information:

- ▶ 2018-19 Annual Report https://outdoorschool.oregonstate.edu/media/1991/annualreport_18-19-downloadable-final.pdf
- ▶ 2017-18 Annual Report https://outdoorschool.oregonstate.edu/media/1279/ods_annualreport-downloadable.pdf
- ▶ Oregon Department of Education Essential Skills <https://www.oregon.gov/ode/educator-resources/essentialskills/Pages/default.aspx>
- ▶ Outdoor School in Oregon <https://grayff.org/wp-content/uploads/2018/07/ODS-final-report.pdf>
- ▶ Instructional Resource Self-Evaluation Tool, Version 2.0 <https://outdoorschool.oregonstate.edu/educators/outdoor-school-principles-and-instructional-resource-self-evaluation-tool/>
- ▶ Principles of Outdoor School version 1.0 <https://outdoorschool.oregonstate.edu/media/1990/principles-of-outdoor-school-flyer-office.pdf>
- ▶ Effects of a Residential Science Education Program on Student Success
Executive Summary <https://grayff.org/wp-content/uploads/2018/07/FinalODSResearchExecutiveSummary.pdf>
Full Report https://pdxscholar.library.pdx.edu/open_access_etds/2730/

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OSU Extension Service | Outdoor School Program

2591 SW Campus Way
Corvallis, OR 97331
Phone: 541-737-4391
outdoorschool.oregonstate.edu

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