



CENTER FOR APPLIED RESEARCH
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Wilderness Inquiry Evaluation Brief: 2018 Minnesota Floating Classrooms

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**Wilderness
Inquiry**



Research, Development and Engagement to Improve Education

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Introduction

Through developmental experiences, youth build the skills, attributes, and mindsets they need to reach their goals, become aware of themselves and their role in society, and succeed in education and career (Nagaoka, Farrington, Ehrlich, & Heath, 2015). There is a broad range of competencies that diverse stakeholders argue are necessary for individuals to develop during their formative years. This includes social and emotional learning (SEL) competencies (e.g., self-awareness, relationship skills); competencies identified as key for employability (e.g., problem solving, critical thinking); and others related to “21st century readiness” (Deeds, Van-Ee, Tsin, & Lerner, 2017; Osher et al., 2016). There is a growing awareness that the development of these attributes cannot solely be the responsibility of schools and that out-of-school learning opportunities can help to meet the demand for youth developmental opportunities – especially when they emphasize the important role that experience plays in learning (Baker, n.d.; Nagaoka et al., 2015).

When considering the impact of expanded learning programs, it is best to view them on a systems level. Individual programs cannot meet all the demands for youth development, but collectively they can provide a range of opportunities that compliment young people’s formal schooling. In the American Youth Policy Forum’s *Youth Serving Ecosystem Framework*, out-of-school programs join with K-12 education, youth employment, and other domains to provide a continuum of services to young people. This constellation of services in turn works to develop in youth a range of outcomes, including SEL competencies, career readiness, and health and wellness (Deeds et al., 2017).¹

Project Overview

Through its programming, Wilderness Inquiry (WI) and the programs it offers are part of the Youth Serving Ecosystem. For example, the Floating Classroom project is a subset of WI’s Canoemobile program.² The Canoemobile program is an outgrowth of the original Urban Wilderness Canoe Adventure (UWCA) program offered through WI.³ Through the Floating Classroom project, Minnesota’s youth and young adults of all backgrounds and abilities participate in fun and engaging water-based activities that also provide them with important environmental, cultural, and science-focused content. Participants connect to the natural world through hands-on, outdoor learning.

The Floating Classroom project and the larger Canoemobile program seek to:

- Engage underserved youth and young adults in the outdoors;
- Provide outdoor recreation and education that builds confidence and skills;
- Increase academic achievement through place-based learning;
- Provide resources, curriculum support, and professional development opportunities for teachers;
- Connect participants to educational and career opportunities across the outdoor sector; and
- Inspire the next generation of citizens to enjoy, explore, and protect public lands.⁴

¹ This webinar provides additional information on the Youth Serving Ecosystem framework: <http://www.readyby21.org/events/webinars/intersection-afterschool-and-sel-21st-century-readiness>.

² See <https://www.wildernessinquiry.org/programs/canoemobile/> for more information on the Canoemobile program.

³ See <https://www.wildernessinquiry.org/> for more information on Wilderness Inquiry.

⁴ Information taken directly from <https://www.wildernessinquiry.org/programs/canoemobile/program-overview/>.

The majority of participants engage through a one-day introductory experience that is designed to inspire “confidence, curiosity and wonder.”⁵ However, some youth will participate through overnight or multi-day experiences that are designed to help youth further develop a stewardship ethic, increase confidence and improve relationships, and learn about possible future recreational and career interests.

Intended Project Outcomes

Among the myriad skills and attributes youth are expected to develop over the course of their development, WI has identified three that its programs are uniquely designed to foster in youth: persistence, environmental stewardship, and future science/career interests.

Persistence. Persistence in this context means individuals’ willingness to try something new, which is related to the Big Five personality characteristic *openness to experience*. Research has demonstrated that individuals who are more open to experience enjoy positive life outcomes, including greater upward career mobility. Importantly, openness to experience does not remain static for individuals over time, meaning that youth programming has the potential to encourage development of this trait (McCrae et al., 2002; Nieß & Zacher, 2015).

Environmental stewardship. Environmental stewardship can be viewed as a component of the SEL competency *responsible decision-making*, defined as “the capacity to make choices based on realistic evaluations of consequences, well-being, ethics, safety, and social norms” (Osher et al., 2016, p. 646). A higher capacity for responsible decision-making should contribute to more positive youth outcomes in terms of interpersonal skills and academic performance (Weissberg & Cascarino, 2013).

Future science/career interests. WI and the Floating Classroom program are especially interested in developing students’ interests in science and the environment. Interest in pursuing a STEM-related career is typically developed during childhood and adolescence. Expanded learning programs that incorporate science are an important compliment to schooling for growing student interest in science and may be especially important for increasing the representation of underserved groups in the STEM fields (Leonard, Chamberlin, Johnson, & Verma, 2016).

Methods

Wilderness Inquiry Participant Survey 2018

The WI Participant Survey is an 11-item, retrospective pre-post survey⁶ intended to examine trip outcomes for youth who participate in WI programming. Specifically, the survey intends to measure changes across these 3 factors: *persistence* (4 items), *environmental stewardship* (3 items), and *future science/career interests* (4 items). Survey respondents indicate how well each of the 11 items describe their behaviors before and after the trip using a scale of *very untrue of me*, *somewhat untrue of me*, *somewhat true of me*, and *very true of me*. In Table 1, we present each of the items and their associated constructs.

⁵ See the WI Pyramid of Engagement at: <https://www.wildernessinquiry.org/programs/canoemobile/program-overview/>.

⁶ A retrospective pre–post survey allows evaluators to collect information about how a participant felt before the program (“retrospective pre”) and after (“post”) the program in a single data collection event.

Table 1

Survey Item by Factor

#	Survey Item	Factor
1	I like to try new things.	Persistence
2	I am likely to try a new outdoor activity.	Persistence
3	I believe I will be able to accomplish the things I decide I want to do.	Persistence
4	I think about ways to overcome challenges when trying something scary.	Persistence
5	I am interested in helping the environment.	Environmental stewardship
6	It is partly my responsibility to care for the environment.	Environmental stewardship
7	I know something I can do to make the environment better.	Environmental stewardship
8	I am interested in jobs where I would work in nature.	Future science/career interests
9	I am interested in jobs that have to do with science.	Future science/career interests
10	I am interested in science.	Future science/career interests
11	I would like to go on a field trip where I learn about science.	Future science/career interests

2018 WI Participant Survey versions. Two versions of the WI Participant Survey were used in 2018 – the WI Day Trip Participant Survey (referred to as “Day Trip Survey”) and the WI Extended Trip Participant Survey (referred to as “Extended Trip Survey”). These surveys both include the 11 items described above, but the WI Extended Trip Survey includes two additional items in which respondents are asked to share the highlight of their trip and something they learned about themselves (see Appendix A for a copy of the Day Trip Survey and Appendix B for a copy of the Extended Trip Survey).

WI Participant Survey administration. For 2018, the WI Participant Survey was administered to a sample of the day and extended trips that occurred in 2018. Survey respondents completed either the Day Trip Survey or the Extended Trip Survey, as applicable, upon completion of the selected 2018 trip.

CAREI initially selected the trips at which the survey would be administered from a master list of WI trips scheduled for the 2018 season. However, WI staff members were instructed to only administer the survey if the programming provided was “typical” (e.g., the survey was not administered if the canoeing portion of the trip was rained out); thus, WI substituted trips after the initial trip selection based on availability.

For the Day Trip Survey, an attempt was made to sample approximately three trips (or approximately 225 participants, assuming 75 participants per trip) from each of the following six categories of school type (schools sign up to participate in a WI trip, and only one school is associated with each trip event):

- urban middle schools,
- urban high schools,
- suburban middle schools,
- suburban high schools,
- rural middle schools, and
- rural high schools.

Table 2 shows the number of respondents in each of these categories. For example, the target sample size of 225 participants was exceeded slightly for the urban and rural middle school categories ($n=230$ and 227 survey respondents, respectively), but was underrepresented in the suburban high school category ($n=98$ survey respondents).

For the Extended Trip Survey, 15 trips were initially selected with the goal of 200 survey respondents. Ultimately, participants in 14 extended trips completed the Extended Trip Survey ($n=245$).

Table 2

Day Trip Survey: Participant Sample by Grade Level and Location

School Grade Configuration	Rural		Urban		Suburban	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Middle School	227	52%	230	58%	131	57%
High School	208	48%	169	42%	98	43%
Total	435	100%	399	100%	229	100%

WI Participant Survey data analysis. The data from the Day Trip Survey and Extended Trip Survey were analyzed separately, and we present the results separately in this report; however, we used the same data analysis methods for each survey. The WI Participant Survey data were analyzed by each of the three factors (*persistence*, *environmental stewardship*, and *future science/career interests*) separately for the Day and Extended Trip Surveys. First, factor pre- and post-means were calculated for each individual only if they had provided a pre- or post-trip self-rating for all items within a given factor. Thus, for individuals who had both a pre- and post-mean in a given factor, we were able to determine the difference between the means and the percent change⁷ between them. Next, we computed the average of the factor’s pre- and post-means. For example, the *persistence* pre-mean was based on 979 scores, the post-mean was based on 987 scores, and 935 individuals had both a pre-mean and post-mean. The mean difference, therefore, was based on 935 individuals who provided self-ratings for all items in that factor (i.e., in order to calculate the mean difference, an individual had to have both a pre-mean and a post-mean score). The same procedure was used to calculate the standard deviations and percent changes for each factor. To test whether the overall pre-post changes were statistically significant, a paired-samples *t*-test was conducted for each factor separately. A statistically significant result indicates that the post-mean is statistically significantly higher than the pre-mean, indicating a statistically significant change from the pre- to post-trip ratings. The overall pre-post changes were analyzed for the day trip and extended trip data separately (i.e., six paired samples *t*-tests were conducted, 2 trip types by 3 factors). An alpha level equal to 0.05 was used for each of the six tests.

The analysis methods described above for the data overall were also used to examine the data by demographic characteristics (by location, grade band, race/ethnicity, and gender for the Day Trip Survey and by race/ethnicity and gender for the Extended Trip Survey). To test whether there were differences between demographic groups in pre-post changes, a series of independent-samples *t*-tests were conducted for each factor separately. For each demographic variable, all possible comparisons were made. For example, regarding the location variable (Day Trip Survey), rural participants were compared to suburban participants, rural participants were compared to urban participants, and suburban participants were compared to urban participants on each of the three factors. The alpha level used was equal to 0.05 divided by the number of *t*-tests for each demographic variable; thus, for the above example, we divided 0.05 by 3 (because three comparisons were made) for an adjusted alpha equal to 0.016 for each factor.

⁷ The percent change is calculated as follows: $\{[(Post_{MEAN} - Pre_{MEAN}) / Pre_{MEAN}] * 100\}$.

In addition, we calculated and present in this report the percentage of respondents selecting each response category (*very untrue of me, somewhat untrue of me, somewhat true of me, very true of me*) for all 11 closed-ended items on the Day Trip and Extended Trip Surveys (for both the pre- and post-trip ratings).

The two open-ended survey items on the Extended Trip Survey (“*What was the highlight for you during the trip?*” and “*What was one thing you learned about yourself on the trip?*”) were analyzed independently by two evaluators who reached an agreement on common themes. Respondents’ comments could be coded into more than one theme. For example, if a participant mentioned two highlights of the trip related to making new friends and enjoying nature, that individual’s response would be coded into two categories. In our results, we present quotations taken from the surveys in italics. Note that spelling and punctuation may have been edited for clarity, but the meaning and intent of the quotations have not changed in any way by this standardization.

Wilderness Inquiry Teacher Survey 2018

WI Teacher Survey instrument. On the 14-item, online 2018 WI Teacher Survey, teachers were asked about their perceptions of their students’ experiences and learning outcomes from their trip, their attitudes and beliefs related to the trip, and their perceptions of trip logistics and the trip leaders. Survey respondents indicated the extent to which they agreed with each of the 14 items using a scale of *strongly disagree, disagree, agree, strongly agree, and unable to answer*. Respondents were also asked to share why they would or would not recommend the trip to colleagues and whether they had any additional feedback about the trip they would like to offer. See Appendix C for a copy of the WI Teacher Survey.

WI Teacher Survey administration. A survey link was shared by WI program staff with the 34 teachers whose trips had been selected to complete the WI Day Trip Participant Survey. Between June–December 2018, a total of 21 unique teacher respondents completed the survey.⁸

WI Teacher Survey data analysis. Survey data for the 14 closed-ended items were analyzed by item and are presented by the three topic areas of the survey. For each item, the percentage of respondents who selected each response option is shown. The two open-ended survey items were analyzed independently by two evaluators who reached an agreement on common themes. In our results, we present representative quotations from respondents in italics. As with the Extended Trip Survey, survey respondents’ comments could be coded into more than one theme.

Wilderness Inquiry Participant Survey 2018 Results

In this section, we present the survey results from a sample of respondents who participated in WI programming in 2018. Overall, 1,063 participants completed the Day Trip survey and 245 participants completed the Extended Trip survey. We also present the demographics for the Day Trip and Extended Trip survey respondents separately and overall.

⁸ We note that two duplicate surveys were removed from analysis based on duplicate IP addresses, and two surveys were removed because the respondents indicated they were not teachers. This resulted in a total of 21 unique teacher respondents whose survey responses were analyzed.

Demographics of Survey Respondents

Participants were asked to provide their grade level, gender, and race/ethnicity (see Tables 3–5⁹). Table 3 shows that, overall, the greatest number of respondents (63%) were between Grades 6–9. However, nearly half (47%) of Extended Trip survey respondents were in Grade 8, while the greatest number of Day Trip respondents (20%) were in Grade 7. As Table 4 shows, an equal number of respondents indicated that, overall, they were female or male (49% each), although the majority of Day Trip survey respondents was female (51%) and the majority of Extended Trip respondents was male (55%). Overall and for both Day and Extended Trips, the greatest number of respondents identified as White/Caucasian (see Table 5; 42% overall). This was followed by students who self-identified as black or African American for the Day Trips (18%) and by students who self-identified as Hispanic or Latino for the Extended Trips (27%).

Table 3

Self-Reported Grade Level

Age	Day Trip		Extended Trip		Overall	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Grade 4	57	6%	2	1%	59	5%
Grade 5	76	7%	16	7%	92	7%
Grade 6	157	15%	17	7%	174	14%
Grade 7	206	20%	24	10%	230	18%
Grade 8	97	9%	110	47%	207	16%
Grade 9	158	15%	32	14%	190	15%
Grade 10	92	9%	11	5%	103	8%
Grade 11	86	8%	13	6%	99	8%
Grade 12	71	7%	10	4%	81	6%
Other	24	2%	1	0%	25	2%
Total	1,024	100%	236	100%	1,260	100%

Note. One third grader completed the survey, but those results were not included here because the survey was not designed for grade 3 students. Grade level information was not provided by 39 day trip and 9 extended trip respondents.

Table 4

Self-Reported Gender

Gender	Day Trip		Extended Trip		Overall	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
Female	513	51%	100	43%	613	49%
Male	478	47%	126	55%	604	49%
Trans	8	1%	-	-	8	1%
Other	9	1%	5	2%	14	1%
Total	1,008	100%	231	100%	1,239	100%

Note. Gender information was not provided by 55 day trip and 14 extended trip respondents. Some responses listed by respondents under “Other” included “non-binary” or “hisgend.”

⁹ Total percentages may not equal 100% due to rounding.

Table 5

Self-Reported Race/Ethnicity

Race/Ethnicity	Day Trip		Extended Trip		Overall	
	<i>n</i>	%	<i>n</i>	%	<i>n</i>	%
American Indian or Alaska Native	44	4%	5	2%	49	4%
Asian	88	9%	18	8%	106	8%
Black or African American	185	18%	31	13%	216	17%
Hispanic or Latino	104	10%	65	27%	169	13%
Native Hawaiian or Pacific Islander	3	0%	1	0%	4	0%
White/Caucasian	453	44%	81	34%	534	42%
Two or more races (Multi-racial)	89	9%	22	9%	111	9%
Other	56	5%	17	7%	73	6%
Total	1022	100%	240	100%	1262	100%

Note. Race/ethnicity information was not provided by 41 day trip and 5 extended trip respondents.

Day Trip Survey Results

Day trip respondent changes by factor. In Table 6, we present the pre- and post-program means and standard deviations (SDs) for each of the three factors, as well as the mean difference between the pre-post means and the percent change in the pre-post means. Note that each of the values in Table 6 was computed first at the individual level and then the mean of those values was taken to provide the number shown in each table; thus, you may not always be able to replicate the value shown in the table. For example, the percent change was calculated by taking each individual respondent’s percent change and averaging those values. Thus, if you calculate the percent change for *persistence* using the values in the table $\{[(3.30-3.09)/3.09] \times 100\}$, you will not get a change of 9.8%.

To interpret the mean scores, recall that the four response options included *very untrue of me*, *somewhat untrue of me*, *somewhat true of me*, and *very true of me*. A mean score of 1 would thus align with *very untrue of me*, while a mean score of 4 would align with *very true of me*. In other words, a higher mean indicates that respondents provided a higher self-rating for items within that factor.

As shown in Table 6, a positive finding is that, for all three factors, the overall post-means were higher than the overall pre-means. Day Trip Survey respondents, on average, changed by 10% from their pre- to post-ratings in all three factors. This pre-post change was statistically significant for all three factors. The factor with the greatest percent change was *environmental stewardship*, which increased by an average of 10.4% from a mean of 3.14 to 3.31. This was followed by a 10.3% change in self-ratings for *future science/career interests*, which changed from a pre-mean of 2.70 to a post-mean of 2.87. The factor with the smallest percent change from pre- to post-mean was *persistence*, which increased from 3.09 to 3.30.

Table 6

Day Trip Pre- and Post-Program Means, Mean Difference, and Percent Change, by Factor

Factor	<i>n</i>	Pre-Mean	Pre-Mean SD	Post-Mean	Post-Mean SD	Mean Diff	Mean % Change
Persistence	935	3.09	0.66	3.30	0.64	0.22	9.8
Environmental stewardship	908	3.14	0.75	3.31	0.72	0.20	10.4
Future science/career interests	898	2.70	0.86	2.87	0.87	0.18	10.3

Note. The *n* represents the number of respondents who have both a pre- and post-trip self-rating in the factor.

Day trip respondent changes by demographic characteristics. Next, we examined how factor-level changes for day trip participants might vary by participants' demographic characteristics. For each factor, we ran tests of statistical significance comparing the pre- and post-program means by geographic location of the sampled school (rural, urban, or suburban); grade band of the sampled school (middle or high); race/ethnicity of survey respondents; and gender of survey respondents. In Appendix D (Tables D1–D3), we provide this information by each of the three factors, while we present key highlights below.

Persistence. The results indicate a statistically significant difference in reported *persistence* by location, with rural respondents showing significantly less pre-post change than urban and suburban respondents. There were no statistically significant differences between urban and suburban respondents on the *persistence* factor. The results also show that middle school students displayed significantly more pre-post change than high school students in their reported *persistence*, as did female survey respondents. There were no statistically significant differences in pre-post change in *persistence* between racial/ethnic groups.

Environmental stewardship. The results indicate a statistically significant difference in reported *environmental stewardship* by location, with rural survey respondents showing significantly less pre-post change than urban respondents. There were no statistically significant differences between suburban and rural participants or between suburban and urban participants on the *environmental stewardship* factor. As with the *persistence* factor, the results show that middle school students displayed significantly more pre-post change than high school students in their reported *environmental stewardship*. However, unlike *persistence*, there were no statistically significant differences between any of the gender groups on the *environmental stewardship* factor. There was, however, a statistically significant difference between racial and ethnic groups, with survey respondents who self-identified as Black or African American showing greater pre-post change in *environmental stewardship* than survey respondents who identified as White. There were no statistically significant differences in *environmental stewardship* between any of the other racial and ethnic groups.

Future science/career interests. As with the *persistence* and *environmental stewardship* factors, the results indicate a statistically significant difference in reported *future science/career interests* by location, with rural participants showing significantly less pre-post change than urban participants. There were no statistically significant differences between suburban and rural participants or between suburban and urban participants on the *future science/career interests* factor. Unlike for the *persistence* and *environmental stewardship* factors, there was no significant difference between middle and high school students in their reported *future science/career interests*. As with the *persistence* factor, there was a statistically significant difference between male and female survey respondents on the *future science/career interests* factor, with female respondents reporting greater pre-post change than male respondents. There were no statistically significant differences between any of the racial and ethnic groups on the *future science/career interests* factor.

Day trip respondent changes by item. In this section, we present the item-level response information for the day trip pre- and post-trip ratings, organized by each of the three factors. In Figures 1–3, the “Pre” row for each item shows how respondents felt about themselves before the trip; the “Post” row shows how they rated themselves after the trip. (Appendix E provides the same information as shown in Figures 1–3 below, but in table format for the day trips.)

Persistence. The percent of day trip respondents selecting *very* or *somewhat true of me* for the four *persistence* items increased from the pre- to post-program by 6–11 percentage points (see Figure 1). There was an 11 percentage point change for the statements “*I am likely to try a new outdoor*

activity” (item 2; from 75% to 86% pre to post) and “I think about ways to overcome challenges when trying something scary” (item 4; from 70% to 81% pre to post). There was a 6 percentage point change for two statements: “I like to try new things” (item 1; from 83% to 89%) and “I believe I will be able to accomplish the things I decide I want to do” (item 3; from 82% to 88%).

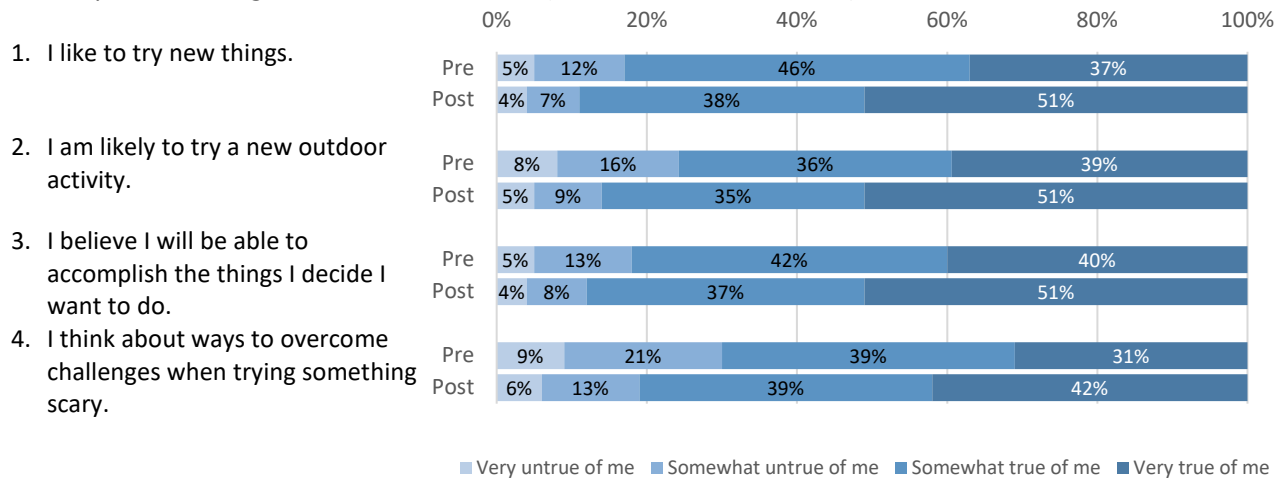


Figure 1. Persistence Item-Level Responses for Day Trip Survey Respondents

Environmental stewardship. The percent of respondents selecting *very* or *somewhat true of me* for the three *environmental stewardship* items increased from pre- to post-program by between 6–10 percentage points (see Figure 2). The largest increase of 10 percentage points occurred for the statement “I know something I can do to make the environment better” (item 7; from 73% to 83%). Overall, respondents also reported that they are interested in helping the environment and that it is partly their responsibility to care for the environment.

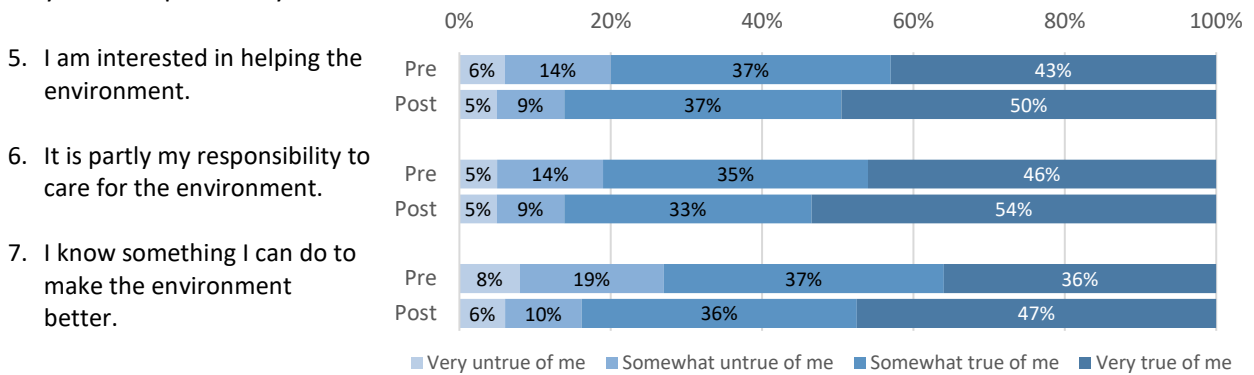


Figure 2. Environmental Stewardship Item-Level Responses for Day Trip Survey Respondents

Future science/career interests. The percent of respondents selecting *very* or *somewhat true of me* for the four *future science/career interests* items increased from pre- to post-program by between 6–12 percentage points (see Figure 3). The statement with the greatest change – which was also the greatest change among all items for the day trip participants – was “I am interested in jobs where I would work in nature” (item 8, from 50% to 62%). Note, however, that this item had the fewest number of respondents selecting *very* or *somewhat true of me* on both the pre- and post-survey. Overall, respondents also reported that they are interested in jobs that have to do with science, that they are interested in science, and that they would like to go on a field trip where they can learn about science.

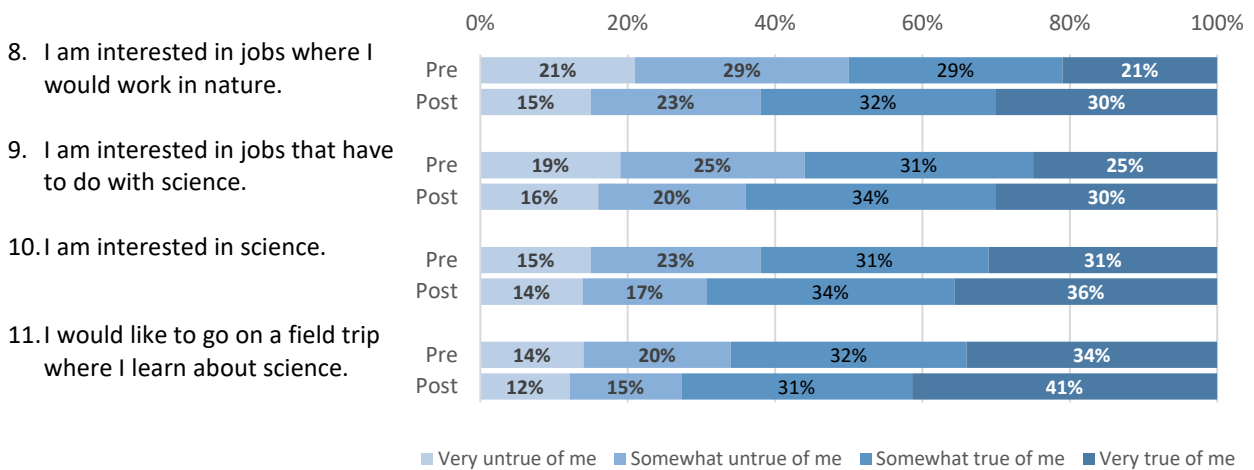


Figure 3. Future Science/Career Interests Item-Level Responses for Day Trip Survey Respondents

Extended Trip Survey Results

Extended trip respondent changes by factor. In Table 7, we present the pre- and post-program means and standard deviations (SDs) for each of the three factors, as well as the mean difference between the pre-post means and the percent change in the pre-post means for the extended trips. These values were computed in the same way as described above for day trip participants.

As shown in Table 7, a positive finding is that, for all three factors, the overall post-means were higher than the overall pre-means. Extended trip survey respondents changed by 13.6% from their pre- to post-ratings on the *persistence* factor and by, on average, 11% on the *environmental stewardship* and *future science/career interests* factors. The pre-post change was statistically significant for all three factors.

Table 7

Extended Trip Pre- and Post-Program Means, Mean Difference, and Percent Change, by Factor

Factor	<i>n</i>	Pre-Mean	Pre-Mean SD	Post-Mean	Post-Mean SD	Mean Diff	Mean % Change
Persistence	225	3.00	0.65	3.30	0.61	0.31	13.6
Environmental stewardship	224	3.22	0.64	3.42	0.63	0.24	11.1
Future science/career interests	221	2.67	0.82	2.89	0.84	0.22	10.9

Note. The *n* represents the number of respondents who have both a pre- and post-trip self-rating in the factor.

Extended trip respondent changes by demographic characteristics. As with the day trips, we examined how factor-level changes might vary by participants’ demographic characteristics. For each factor, we ran tests of statistical significance comparing the pre- and post-program means by the race/ethnicity and gender of survey respondents. In Appendix F (Tables F1–F3), we provide this information by each of the three factors. Analysis of the extended trip data showed no statistically significant differences between any of the demographic groups for any of the three factors, which suggests all respondents, on average, reported similar amounts of pre-post change. Any differences observed in Tables G1–G3 should, therefore, be interpreted with caution.

Extended trip respondent changes by item. In this section, we present the item-level response information for the extended trip pre-and post-trip ratings, organized by each of the three factors. In Figures 4–6 below, the “Pre” row for each item shows how respondents felt about themselves before

trip; the “Post” row shows how they rated themselves after the trip. (Appendix G provides the same information as shown in Figures 4–6 below, but in table format for the extended trips.)

Persistence. The percent of extended trip respondents selecting *very* or *somewhat true of me* for the four *Persistence* items increased from the pre- to post-program by 10–13 percentage points (see Figure 4). The greatest change, of 13 percentage points, was for the statement “*I think about ways to overcome challenges when trying something scary*” (item 4; from 73% to 86% pre to post). This was followed by an 11 percentage point change for two statements: “*I like to try new things*” (item 1; from 80% to 91%) and “*I am likely to try a new outdoor activity*” (item 2; from 75% to 86% pre to post). Finally, there was a 10 percentage point change for the statement “*I believe I will be able to accomplish the things I decide I want to do*” (item 3, from 78% to 88%).

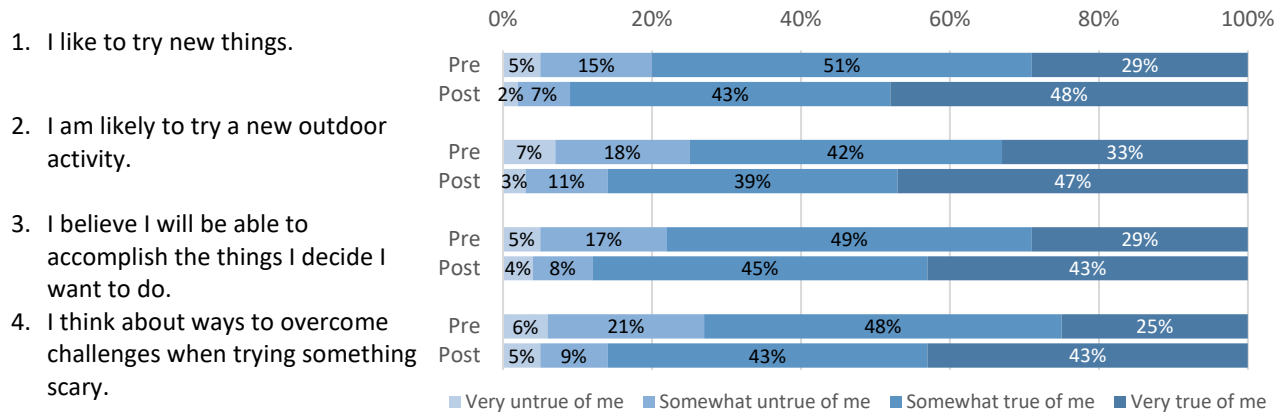


Figure 4. Persistence Item-Level Responses for Extended Trip Survey Respondents

Environmental stewardship. The percent of extended trip respondents selecting *very* or *somewhat true of me* for the three *environmental stewardship* items increased from pre- to post-program by between 5–7 percentage points (see Figure 5). The largest increase of 7 percentage points occurred for two statements: “*It is partly my responsibility to care for the environment*” (item 6; from 85% to 92%) and “*I know something I can do to make the environment better*” (item 7; from 80% to 87%). There was a 5 percentage point change in the number of respondents reporting that they are interested in helping the environment (item 5; from 85% to 90%).

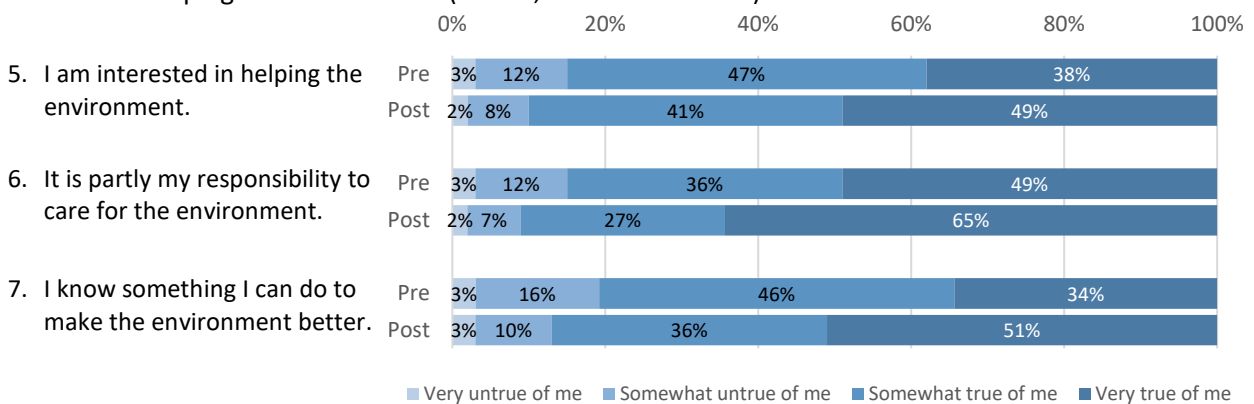


Figure 5. Environmental Stewardship Item-Level Responses for Extended Trip Survey Respondents

Future science/career interests. The percent of respondents selecting *very* or *somewhat true of me* for the four *future science/career interest* items increased from pre- to post-program by between 6–20 percentage points (see Figure 6). The statement with the greatest change – which was also the greatest change among all items for the Extended Trip Survey respondents – was “*I am interested in jobs where I would work in nature*” (item 8, from 50% to 70%). Overall, respondents also reported that they

are interested in science, that they would like to go on a field trip where they can learn about science, and that they are interested in jobs that have to do with science.

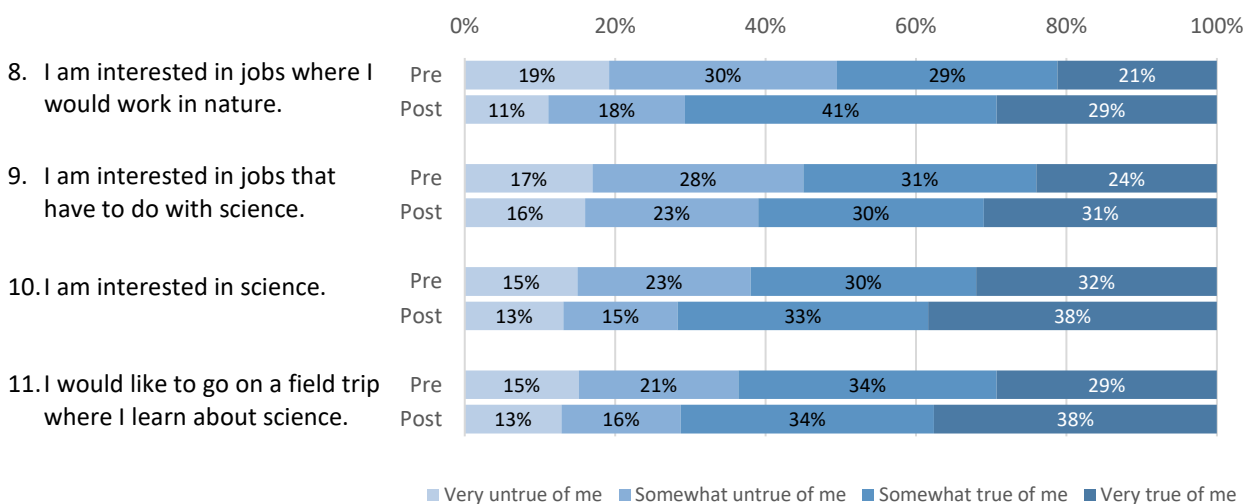


Figure 6. Future Science/Career Interests Item-Level Responses for Extended Trip Survey Respondents

Extended trip open-ended responses. In addition to the survey items, WI participants on the extended trips were given the opportunity to offer open-ended responses to two items: “*What was the highlight for you during the trip?*” and “*What was one thing you learned about yourself on the trip?*” In this section, we review separately the responses shared by respondents for each of these items.

Trip highlights. Of the 245 Extended Trip Survey respondents, 222 individuals provided feedback in response to the open-ended item “*What was the highlight for you during the trip?*” Of these respondents, nearly all individuals ($n=121$) shared at least one highlight of being on the trip, while one person said their highlight was “*leaving*” and one person said they enjoyed everything except the “*bugs.*” Responses from 6 individuals were not coded due to a lack of clarity. Overall, however, respondents shared that the trip was a positive and enjoyable experience for them.

Of the 121 respondents who described a highlight, 6 people provided responses such as “*everything*” or “*the trip.*” More specific highlights that respondents described, however, fell into six broad themes: 1) they enjoyed the trip activities ($n=117$); 2) they valued time with friends, having fun, and having free time ($n=45$); 3) they enjoyed aspects of nature such as seeing wildlife or going to specific nature sites ($n=40$); 4) they liked the food ($n=12$); 5) they enjoyed learning new things ($n=10$); and 6) they also mentioned a range of other highlights that did not fall into larger themes ($n=18$).¹⁰ Each of these areas is discussed below.

Trip activities. For the majority of youth in the extended trip programs ($n=117$), the best part of their experience related to the trip activities. This included canoeing ($n=44$); swimming and going to the beach ($n=25$); going to the fire tower ($n=15$); camping and camping-related activities, such as cooking over the campfire and setting up the campsite ($n=15$); hiking ($n=14$); fishing ($n=8$); and other activities that included crafts ($n=1$), mapping ($n=1$), setting up a trap ($n=1$), and testing water chemicals ($n=1$). For example, feedback from participants included the following comments:

I really enjoyed all of the canoeing that we did.

¹⁰ As a reminder, participants’ comments could be coded into more than one theme.

The highlight of the trip for me was canoeing.

Swimming in the river.

Overcoming my fear of heights on the fire tower.

Hiking 2 miles.

Building the tents and setting everything up.

Exploring and mapping.

Friends, fun, and free time. Another highlight of the trip for 45 Extended Trip Survey respondents involved their friends, fun, and free time. Approximately half of these individuals ($n=23$) described being with friends as a special part of the trip; of these respondents, 10 people specifically described meeting or spending time with *new* friends as a highlight for them. Other highlights in this theme included playing games (e.g., Ghost in the Graveyard, Mafia, Hide and Seek Tag) and having fun ($n=19$); singing ($n=5$); free time ($n=5$); and spending time with the guides ($n=2$). Exemplar quotes include:

Hanging out with other campers.

Making friends that I didn't think I could make.

The highlight for my trip was making new friends.

Just hanging out with friends and our WI guides.

The fun we all had!

The singing.

Hammocking.

Unplugging from all technology.

Nature. For 40 participants, the trip highlight related to experiences in nature. This included, for example, seeing something in nature ($n=14$) such as a snake, moose, raccoons, and other wildlife, as well as seeing things such as a cave, a cliff, stars, and sunsets. Other nature-related highlights included visiting the headwaters of the Mississippi and walking across the river ($n=12$), being in nature and exploring ($n=10$), and visiting Gooseberry Falls or other waterfalls ($n=4$). For example, some participants wrote the following:

Being able to see animals in their natural habitat.

Seeing the full moon the first night.

Seeing the start of the Mississippi River.

The highlight of my trip was being able to experience being in a place so isolated and a lot older than us.

The solitude of being in nature.

Going to Gooseberry Falls.

Food. A fourth trip highlight for participants related to the food on their trip, as noted by 12 respondents. Six respondents specifically noted the s'mores as their trip highlight while one person enjoyed "eating pancakes" and one person enjoyed trying "new food."

Learning and trying new things. The fifth category of trip highlights for Extended Trip Survey respondents was learning and trying new things, which in some cases helped them to overcome certain fears. New skills including learning how to canoe and how to tie knots, while areas of new learning included learning about nature, wildlife, and teamwork. As some of these respondents shared:

I learned that working as a team is very important if you want to accomplish something.

[A highlight was] overcoming my fear of heights on the fire tower.

[A highlight was] learning new things about nature.

Other highlights. Finally, 18 respondents described a range of other trip highlights that did not fall into the five more common themes. Responses provided by more than one person included the van or bus ride ($n=5$), sleeping ($n=4$), and going to the Visitor's Center ($n=2$). Responses provided by one person each included, for example, "staying up late," "taking pictures," "seeing people improve," and "getting back to the tent."

Lessons learned. Of the 245 Extended Trip Survey respondents, 189 individuals provided feedback in response to the open-ended item "What was one thing you learned about yourself on the trip?" These responses fell into five broad themes: 1) they enjoyed or learned about an activity or interest ($n=63$); 2) they learned about their own attributes, skills, or needs ($n=61$); 3) they learned what they did not enjoy, such as bugs or the cold ($n=24$); 4) they learned about trying new things and meeting new people ($n=10$); and 5) they learned about a new topic ($n=8$).¹¹ Responses from 6 individuals were not coded due to a lack of clarity. Each of the five identified themes are discussed below.

New activities. The greatest number of participants ($n=63$) discussed learning about or enjoying an activity, including 7 people who specifically explained that they enjoyed an activity more than they thought they would. Specific activities noted by respondents included camping ($n=23$), being outside or in nature ($n=21$), canoeing ($n=16$), hiking ($n=2$), swimming ($n=1$), and geocaching ($n=1$). Some participants shared the following:

I enjoy nature more than I initially thought.

I learned that camping is great.

I learned I could set up a tent all by myself.

I learned how to not waste food.

¹¹ As a reminder, participants' comments could be coded into more than one theme.

I learned that I can paddle better than I thought I could.

[I learned] that I like canoeing.

Individual attributes, skills, and needs. Next, 61 Extended Trip Survey respondents wrote about specific attributes, skills, or needs that they learned about themselves through their experience on the trip. For example, 28 people explained that they learned both positive and negative attributes about themselves. Adjectives that the youth used to describe themselves included: *trustworthy, competitive, quiet, talkative, cool, a team player, a morning person, a good leader, impatient, short-tempered*, among others. Other ways in which participants learned about themselves included learning to believe in themselves to overcome challenges or take risks ($n=23$); learning to step away from life as usual, including technology and schedules ($n=8$); learning about their own sleeping habits and needs ($n=3$); and taking time to reflect on their summer ($n=2$). Examples from respondents related to this theme include:

I learned that I am a very calm person.

I'm trustworthy.

I can be a better team player than I thought.

I can overcome my fear of heights.

I learned that I am so much [more] capable of things than I ever thought.

[I learned] that I can do anything even the things I'm scared of if I try.

I have more endurance than I thought.

I learned how attached I am to my phone.

I can do more than just being on my phone.

I need more sleep.

[The trip] helped me reflect on the year and think about who I am and who I want to be.

Areas participants did not enjoy. When asked what they learned about themselves on the trip, 24 participants provided at least one example of something they learned they did not enjoy. Responses included bugs such as mosquitoes, ticks, and spiders ($n=13$); camping, including sleeping in tents and the camp food ($n=5$); the weather, especially the cold ($n=4$); particular activities such as canoeing and hiking ($n=3$), and "nature" ($n=1$).

Trying new things and meeting new people. Just as some Extended Trip Survey respondents described learning and trying new things as a trip highlight, other participants discussed this as part of something they learned on the trip ($n=10$). For example, some youth learned that they enjoyed meeting and spending time with new friends, and others described trying new food or learning that they enjoy trying new things. Examples of what these respondents described learning include:

To always try something new.

Be respectful and care for others and learn and try new stuff.

Hanging out with different people is fun.

I am likely to try new things out doors.

I can eat food I am not accustomed to.

I like couscous.

New topics. Finally, some participants described learning about a variety of new topics or new facts ($n=8$). For example, youth explained that they learned the following:

A lot of cool things like plants that I did not know the names of.

About osprey.

Be kind [to] each other.

Obey directions of the guide.

Teamwork made dreamwork, everyone pitches in.

Wilderness Inquiry Teacher Survey 2018 Results

Teacher Perceptions of Students' Experiences and Learning Outcomes

Thirty-four teachers had the opportunity to complete the WI Teacher Survey, and 21 completed the survey for a response rate of 62%. Teachers were asked to indicate their level of agreement or disagreement to 10 statements about their students' experiences with the trip and their students' learning outcomes (see Table 8). Nearly all survey respondents (95%) either *agreed* or *strongly agreed* with half of the items, indicating that teachers believe their students: learned about the health of their public lands and waterways (item 3); feel more connected to their public lands and waterways (item 4); have an increased interest in helping the environment (item 6); will be more open to new experiences, even if those experiences are challenging for them (item 8); and that they had a valuable experience on the trip (item 14). The greatest number of respondents (29%) either *disagreed* or *strongly disagreed* that many of their students are more aware of jobs in the outdoors/environment because of the trip (item 7). For one item (item 2), 14% of respondents indicated that they were *unable to answer* the extent to which they *agreed* or *disagreed* that their students learned things on the trip that are relevant to the learning goals of their school.

Table 8

Teacher Perceptions of Students' Experiences and Learning Outcomes (n=21)

Item	Strongly disagree	Disagree	Agree	Strongly agree	Unable to answer
1. I believe the students learned a lot on the trip.	5%	5%	38%	52%	-
2. My students learned things on the trip that are relevant to the learning goals at my school.	5%	10%	19%	52%	14%
3. As a result of the trip, my students learned about the health of their public lands and waterways.	-	5%	57%	38%	-
4. As a result of the trip, I believe my students feel more connected to their public lands and waterways.	5%	-	67%	29%	-
5. I think that my students will be more interested in science because of the trip.	5%	10%	67%	19%	-
6. I believe the trip increased my students' interest in helping the environment.	5%	-	71%	24%	-
7. Because of the trip, I believe that many of my students are more aware of jobs in the outdoors/environment.	10%	19%	38%	33%	-
8. I believe that, because of the trip, my students will be more open to new experiences even if those experiences are challenging for them.	-	5%	33%	62%	-
9. My students exhibited a high level of engagement during the outdoor experience (they paid attention, respected others, and participated enthusiastically).	-	14%	33%	52%	-
14. Overall, I think the trip was a valuable experience for my students.	5%	-	19%	76%	-

Teacher Attitudes and Beliefs

Respondents also provided their level of agreement to two statements about their connection to students after the trip and their perception of hands-on field trips as a way for students to learn about science (see Table 9). All respondents (100%) either *agreed* or *strongly agreed* that hands-on field trips like the WI trip that their students participated in are one of the best ways for students to learn science topics (item 13). In addition, the majority of respondents (86%) *agreed* or *strongly agreed* that they have a stronger connection to their students because of the trip (item 10); however, 10% either *disagreed* or *strongly disagreed* with this item and 5% were *unable to answer*.

Table 9

Teacher Attitudes and Beliefs (n=21)

Item	Strongly disagree	Disagree	Agree	Strongly agree	Unable to answer
10. Because of the trip, I feel I have a stronger connection to my students.	5%	5%	43%	43%	5%
13. I believe hands-on field trips like these are one of the best ways for students to learn science topics.	-	-	29%	71%	-

Teacher Perceptions of Trip Logistics and Staffing

Finally, respondents were asked two items about the trip logistics and the trip leaders (see Table 10). Notably, all respondents (100%) either *agreed* or *strongly agreed* that the trip leaders were knowledgeable (item 12), and 90% either *agreed* or *strongly agreed* that the trip logistics were well-coordinated (item 11).

Table 10

Teacher Perceptions of Trip Logistics and Staffing (n=21)

Item	Strongly disagree	Disagree	Agree	Strongly agree	Unable to answer
11. Trip logistics were well-coordinated.	5%	5%	43%	48%	-
12. Trip leaders were knowledgeable.	-	-	38%	62%	-

Open-Ended Teacher Feedback

Teachers were also asked if they would recommend the trip to colleagues (by selecting *yes* or *no*) and why, and if they had any final comments about the overall program they wanted to share. Nearly all respondents (95%) indicated that they would recommend the trip to a colleague, and 13 teachers provided explanations why. These explanations fell into 5 main themes: the students had a positive experience ($n=6$), the WI staff were knowledgeable and caring ($n=4$), the programming was well-organized and engaging ($n=4$), students learned about/came to care more about the environment ($n=4$), and teachers liked being able to customize parts of the trip ($n=2$). One teacher explained that he or she would not recommend the trip, and 6 teachers provided suggestions to improve the trip. We discuss each of these areas below.

Recommending the trip to a colleague. The primary reason that teachers gave for recommending the course to a colleague, offered by 6 of the 13 respondents who provided a reason, was that their students had a valuable or positive experience on the trip. Some of these teachers shared the following:

Great experience for youth.

It's very valuable and is time well spent.

My students had a great time.

The students loved it, even in the rain.

Four respondents wrote that they would recommend the course because of the knowledgeable and experienced WI staff who were caring and considerate of the students and their needs. For example, some of these teachers wrote:

Great field staff who knew kids!

I very much enjoyed watching the relationships between my students and the trip leaders develop and grow. The leaders showed amazing empathy and patience towards the kids. They were excellent and I came to sincerely enjoy their company and their interactions with my kids.

Well organized and helpful staff.

The Wilderness Inquiry staff are fantastic. They know what they are doing, they have experience working with youth, and they are trustworthy to lead higher risk field trips. We really appreciated the staff's attention to one of our youth who had a milk allergy. They were very aware with cooking preparations of keeping milk ingredients separate and even having a different hand washing station for that youth. Each of the staff showed great concern and awareness of any possible cross-contamination situations.

Four respondents would recommend the course because of the programming and activities available as part of the trip. For example, two of the teachers explained the following:

The students were well-engaged, the programming was fun and well-organized, staff and students gave positive reviews of the experience. Students were particularly engaged by the canoe and nature hike experiences.

Well-organized and lots of information was covered.

Four teachers wrote that they would recommend the course because their students learned more about the environment or came to care more about the environment. As these teachers explained:

Great outdoor activities that also taught the students about the environment.

I have participated with this trip for four years now and have seen most of the kids grow more respectful towards the environment as well as their classmates.

My students had a lot of fun and they learned a lot about the environment around them.

Two teachers explained that they would recommend the trip because they liked being able to customize parts of the trip to meet their needs. They shared that:

I like having the option to have stations and be able to customize them. Thank you!

WI did a great job. They let me customize the trip to meet my goals.

Finally, one teacher explained that he or she would not recommend the trip to a colleague because it *“was not a good fit for our purposes (math credit recovery).”*

Suggestions to improve the trip. Six teachers offered varied ideas or suggestions to improve the trip that covered areas such as how to improve certain activities or what staff could do to better connect with students who need accommodations. Given the diversity of the suggestions, we have included all of the feedback below, as follows:

The only improvement I would recommend is in the communications regarding coordination with the partners. My impression was that WI coordinated that piece with local partners but when we did the conference call it was like I was supposed to organize. Just make sure the expectations are clear. It all worked out in the end!

Students reported being less interested in the water quality testing activity. Perhaps testing water quality could be incorporated into the canoeing activity, where students take Secchi disk readings and water quality samples while on the lake.

I had a special needs student with me. Some staff were great with him, [but] some staff had to be reminded multiple times to accommodate for him. I would have liked more accommodations, especially [because] that is a huge part of WI's mission statement.

The person who coordinated my field trip said that we would be canoeing at one of the stations. I know it was cold, but I figured it should be fine. We didn't find out until we got to the field trip that we wouldn't be canoeing.

I have a particularly hard group of students, and I wish we had been able to spend more time actively learning LNT and water treatment. Part of that is our group, but it would have been nice to see the WI staff trying to slip some more of that in even in smaller one-on-one or group interactions.

There was way too much down time for students who were reluctant participants. They were allowed too much freedom to get off task.

Summary

Through Wilderness Inquiry's (WI) Floating Classroom project, Minnesota's youth and young adults of all backgrounds and abilities participate in fun and engaging water-based activities that also provide them with important environmental, cultural, and science-focused content. The project aims to connect participants to the natural world through hands-on, outdoor learning and to help youth develop across three specific areas: *persistence*, *environmental stewardship*, and *future science/career interests*. Participants are able to participate in day trips or extended-day trips.

To measure the program's progress in meeting its goals, three survey measures were used: two participant surveys and one teacher survey. First, an 11-item WI Participant Survey was administered to a sample of day trip participants to measure changes in youth across the 3 factors (referred to as the "Day Trip Survey"). Second, an identical survey was administered to a sample of WI extended-day trip participants, *with the addition of* two additional items in which respondents were asked to share the highlight of their trip and something they learned about themselves (referred to as the "Extended Trip Survey"). Finally, a 14-item WI Teacher Survey asked the teachers about their perceptions of their students' experiences and learning outcomes from their trip, their attitudes and beliefs related to the trip, and their perceptions of trip logistics and the trip leaders.

Overall, 1,063 participants completed the Day Trip Survey and 245 participants completed the Extended Trip Survey. Results show that for all three factors for both surveys, the overall post-means were higher than the overall pre-means, and this pre-post change was statistically significant in all cases. Day trip participants, on average, changed by 10% from their pre- to post-ratings on all three factors, while extended-day trip participants changed their pre- to post-ratings by 14% on the *persistence* factor and by 11%, on average, on the *environmental stewardship* and *future science/career interests* factors. The statistically significant pre-post change on the *persistence* factor suggests that, after the trip, participants are more open to new experiences and believe they can overcome challenges. For the *environmental stewardship* factor, the significant pre-post change indicates that, after the trip, respondents have an increased awareness of their role in taking care of the environment. Finally, the significant pre-post change on the *future science/career interests* factor shows that, after the trip, participants have a greater interest in, and knowledge about, careers related to science and nature.

In order to better understand the impact of the programming with different participant groups, we also examined how factor-level changes might vary by respondents' demographic characteristics. Analysis of the Day Trip Survey data showed that rural students reported significantly less pre-post change on all three factors than urban and suburban students; middle school students reported significantly more pre-post change in *persistence* and *environmental stewardship* than high school students; females reported more pre-post change than males in *persistence* and *future science/career interests*; and Black/African American students reported more pre-post change than White students in *environmental stewardship*. The remaining differences were not statistically significant, and should therefore be interpreted with caution.

Again, this same analysis was conducted using the Extended Trip Survey data. The analysis of the extended-day trip data found no statistically significant differences between any of the demographic groups for any of the three factors. This suggests that all respondents, on average, reported similar amounts of pre-post change.

The open-ended items on the Extended Trip Survey lend additional insight into the participants' experiences. Of the 121 extended-day trip respondents who provided a highlight of their trip, the majority ($n=117$) described how they enjoyed the trip activities (e.g., canoeing, swimming, and so forth). Other highlights mentioned by respondents included spending time with friends, having fun, having free time, experiencing nature and camp food, and learning and trying new things. In addition, 189 respondents described a lesson learned, which included enjoying or learning about an activity or interest; learning about their own attributes, skills, or needs; learning about what they did not enjoy, such as bugs or the cold; trying new things and meeting new people; and learning about a new topic.

The WI Teacher Survey, meanwhile, was completed by 21 of the 34 teachers who were provided with the opportunity to respond to the survey. Results indicate that teachers had positive perceptions of their students' experiences and learning outcomes and that they had highly positive perceptions of the trip logistics and staffing. Suggestions to improve the trip covered areas such as how to improve certain activities, such as the water quality testing activities, or what staff could do to better connect with students who need accommodations. Finally, nearly all teacher respondents (95%) indicated that they would recommend the trip to a colleague, and 13 teachers provided explanations why, including that the students had a positive experience, the WI staff were knowledgeable and caring, the programming was well-organized, students learned about and came to care more about the environment, and teachers liked being able to customize parts of the trip.

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Appendix A: Wilderness Inquiry Day Trip Survey 2018

WILDERNESS INQUIRY DAY TRIP SURVEY

This is a survey, NOT a test. There are no right or wrong answers. Your responses are optional, but your answers will help make our program better. If you choose not to answer, it won't affect your relationship with Wilderness Inquiry or your school. *Thank you for your help!*

DIRECTIONS. Read each statement below. First, think about how you were before the trip and rate yourself in the **BEFORE TRIP** columns. Then, think about how the trip may have changed you and rate yourself in the **AFTER TRIP (NOW)** columns. Choose the best answer for each statement by completely filling in an oval.

BEFORE THE TRIP				<ul style="list-style-type: none"> • Use a pencil or blue or black pen. • Fill bubbles completely. • Do not mark answers with Xs or ✓s. <p>Correct Mark: <input type="radio"/> Incorrect Marks: <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/></p>	AFTER THE TRIP (NOW)			
Very Untrue of Me	Somewhat Untrue of Me	Somewhat True of Me	Very True of Me		Very Untrue of Me	Somewhat Untrue of Me	Somewhat True of Me	Very True of Me
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1. I like to try new things..... 2. I am likely to try a new outdoor activity..... 3. I believe I will be able to accomplish the things I decide I want to do..... 4. I think about ways to overcome challenges when trying something scary. 5. I am interested in helping the environment..... 6. It is partly my responsibility to care for the environment..... 7. I know something I can do to make the environment better..... 8. I am interested in jobs where I would work in nature..... 9. I am interested in jobs that have to do with science..... 10. I am interested in science..... 11. I would like to go on a field trip where I learn about science.....	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

ABOUT YOU: Completely fill in the oval that best applies.

<p>12. I describe myself as:</p> <p><input type="radio"/> American Indian / Alaska Native <input type="radio"/> Native Hawaiian / Pacific Islander</p> <p><input type="radio"/> Asian <input type="radio"/> White</p> <p><input type="radio"/> Black / African American <input type="radio"/> Two or more races (Multi-racial)</p> <p><input type="radio"/> Hispanic or Latino <input type="radio"/> Other</p>	<p>13. I describe myself as:</p> <p><input type="radio"/> Female</p> <p><input type="radio"/> Male</p> <p><input type="radio"/> Trans</p> <p><input type="radio"/> _____ (fill in the blank)</p>
<p>14. What grade are you in?</p> <p><input type="radio"/> 4th grade <input type="radio"/> 6th grade <input type="radio"/> 8th grade <input type="radio"/> 10th grade <input type="radio"/> 12th grade</p> <p><input type="radio"/> 5th grade <input type="radio"/> 7th grade <input type="radio"/> 9th grade <input type="radio"/> 11th grade <input type="radio"/> Other</p>	

Appendix B: Wilderness Inquiry Extended Trip Survey 2018

WILDERNESS INQUIRY EXTENDED TRIP SURVEY

This is a survey, NOT a test. There are no right or wrong answers. Your responses are optional, but your answers will help make our program better. If you choose not to answer, it won't affect your relationship with Wilderness Inquiry or your school. *Thank you for your help!*

DIRECTIONS. Read each statement below. First, think about how you were before the trip and rate yourself in the **BEFORE TRIP** columns. Then, think about how the trip may have changed you and rate yourself in the **AFTER TRIP (NOW)** columns. Choose the best answer for each statement by completely filling in an oval.

BEFORE THE TRIP				<ul style="list-style-type: none"> Use a pencil or blue or black pen. Fill bubbles completely. Do not mark answers with Xs or ✓s. <p>Correct Mark: <input type="radio"/> Incorrect Marks: <input checked="" type="radio"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/></p>	AFTER THE TRIP (NOW)			
Very Untrue of Me	Somewhat Untrue of Me	Somewhat True of Me	Very True of Me		Very Untrue of Me	Somewhat Untrue of Me	Somewhat True of Me	Very True of Me
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	1. I like to try new things..... 2. I am likely to try a new outdoor activity..... 3. I believe I will be able to accomplish the things I decide I want to do..... 4. I think about ways to overcome challenges when trying something scary. 5. I am interested in helping the environment 6. It is partly my responsibility to care for the environment..... 7. I know something I can do to make the environment better 8. I am interested in jobs where I would work in nature 9. I am interested in jobs that have to do with science 10. I am interested in science 11. I would like to go on a field trip where I learn about science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

ABOUT YOU: Completely fill in the oval that *best* applies.

12. I describe myself as:

<input type="radio"/> American Indian / Alaska Native	<input type="radio"/> Native Hawaiian / Pacific Islander	<input type="radio"/> Female
<input type="radio"/> Asian	<input type="radio"/> White	<input type="radio"/> Male
<input type="radio"/> Black / African American	<input type="radio"/> Two or more races (Multi-racial)	<input type="radio"/> Trans
<input type="radio"/> Hispanic or Latino	<input type="radio"/> Other	<input type="radio"/> _____ (fill in the blank)

14. What grade are you in?

<input type="radio"/> 4th grade	<input type="radio"/> 6th grade	<input type="radio"/> 8th grade	<input type="radio"/> 10th grade	<input type="radio"/> 12th grade
<input type="radio"/> 5th grade	<input type="radio"/> 7th grade	<input type="radio"/> 9th grade	<input type="radio"/> 11th grade	<input type="radio"/> Other

15. What was the highlight for you during the trip?

16. What was one thing you learned about yourself on the trip?

Appendix C: Wilderness Inquiry Teacher Survey 2018

Wilderness Inquiry Teacher Survey 2018

The purpose of this survey is to collect feedback based on the experiences of you and your students who recently participated on a Wilderness Inquiry trip. Your responses on this survey are optional, but your answers will help make our program better. If you choose not to answer, it won't affect your relationship with Wilderness Inquiry or your school. All responses will be kept confidential. Thank you for your help!

DIRECTIONS. Read each statement below and think about your level of agreement with the statement. Choose the best answer for each statement by selecting one of the response options.

Item	Strongly Disagree	Disagree	Agree	Strongly Agree	Unable to answer
1. I believe the students learned a lot on the trip.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. My students learned things on the trip that are relevant to the learning goals at my school.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. As a result of the trip, my students learned about the health of their public lands and waterways.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. As a result of the trip, I believe my students feel more connected to their public lands and waterways.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I think that my students will be more interested in science because of the trip.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I believe the trip increased my students' interest in helping the environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Because of the trip, I believe that many of my students are more aware of jobs in the outdoors / environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I believe that, because of the trip, my students will be more open to new experiences even if those experiences are challenging for them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. My students exhibited a high level of engagement during the outdoor experience (they paid attention, respected others, and participated enthusiastically).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Because of the trip, I feel I have a stronger connection to my students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. Trip logistics were well-coordinated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. Trip leaders were knowledgeable.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. I believe hands-on field trips like these are one of the best ways for students to learn science topics.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. Overall, I think the trip was a valuable experience for my students.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Would you recommend trip participation to a colleague?

Yes. Why?

No. Why not?

Please share any final comments about the overall program (lessons and trip).

Please answer the following information about your students and school.

Select the grade configuration of your school:

- Elementary
- Middle
- High

Select the setting in which your school is located:

- Urban
- Suburban
- Rural

Select the grade(s) of your students who attended the trip:

- 4th grade
- 5th grade
- 6th grade
- 7th grade
- 8th grade
- 9th grade
- 10th grade
- 11th grade
- 12th grade
- Other

Thank you for responding to our survey!

Upon exiting the survey, you will be redirected to the Wilderness Inquiry website where you can find out about additional opportunities and receive a special rate on your next personal adventure.

Appendix D: Day Trip Results by Demographic Characteristics

Table D1. Day Trip *Persistence* Pre- and Post-Program Means, by Demographic Characteristics

Demographic Characteristic		<i>n</i>	Pre-Mean	Pre-Mean SD	Post-Mean	Post-Mean SD	Mean Diff	Mean % Change
Location	Urban	322	2.95	0.71	3.25	0.68	0.32	15.2
	Suburban	219	2.99	0.70	3.24	0.70	0.24	10.5
	Rural	394	3.27	0.55	3.38	0.57	0.12	4.9
Grade Band*	Middle	436	3.06	0.67	3.33	0.63	0.27	12.1
	High	499	3.13	0.65	3.28	0.66	0.16	7.1
Race/ Ethnicity	American Indian or Alaska Native	34	3.19	0.49	3.33	0.57	0.18	5.8
	Asian	78	2.96	0.64	3.26	0.53	0.26	11.3
	Black or African American	160	2.93	0.76	3.25	0.73	0.31	15.6
	Hispanic or Latino	87	2.85	0.72	3.22	0.69	0.40	18.9
	Native Hawaiian or Pacific Islander	-	-	-	-	-	-	-
	White/Caucasian	414	3.23	0.59	3.35	0.60	0.12	5.0
	Two or more races (Multi-racial)	77	3.05	0.66	3.23	0.70	0.23	9.5
	Other	50	3.11	0.71	3.41	0.68	0.32	14.5
Gender	Female	451	3.07	0.64	3.32	0.59	0.27	12.0
	Male	427	3.13	0.68	3.29	0.70	0.14	6.3
	Trans	6	2.08	0.90	2.54	0.70	0.50	34.3
	Other	7	3.14	0.24	3.34	0.53	0.32	11.0

Note. The *n* represents the number of respondents who have both a pre- and post-trip self-rating in the factor. Results are not displayed where $n \leq 5$ respondents.

*Grade band was determined by the grade-level configuration of the sampled school, rather than by using the self-reported grade level of survey respondents.

Table D2. Day Trip *Environmental Stewardship* Pre- and Post-Program Means, by Demographic Characteristics

Demographic Characteristic		<i>n</i>	Pre-Mean	Pre-Mean SD	Post-Mean	Post-Mean SD	Mean Diff	Mean % Change
Location	Urban	311	3.04	0.80	3.28	0.75	0.30	16.2
	Suburban	215	3.05	0.79	3.28	0.75	0.21	11.8
	Rural	382	3.26	0.66	3.36	0.68	0.11	4.9
Grade Band*	Middle	480	3.13	0.78	3.33	0.72	0.24	13.1
	High	428	3.15	0.72	3.29	0.71	0.15	7.4
Race/ Ethnicity	American Indian or Alaska Native	36	3.23	0.62	3.31	0.71	0.12	4.2
	Asian	76	2.98	0.71	3.26	0.72	0.24	9.7
	Black or African American	149	3.01	0.83	3.29	0.78	0.33	17.9
	Hispanic or Latino	88	2.99	0.75	3.26	0.67	0.29	15.4
	Native Hawaiian or Pacific Islander	-	-	-	-	-	-	-
	White/Caucasian	405	3.22	0.72	3.35	0.70	0.14	7.1
	Two or more races (Multi-racial)	71	3.24	0.71	3.32	0.69	0.13	6.0
	Other	49	3.08	0.86	3.28	0.78	0.24	16.8
Gender	Female	444	3.20	0.71	3.39	0.67	0.22	10.7
	Male	410	3.08	0.77	3.24	0.77	0.16	9.3
	Trans	6	2.61	1.16	3.00	0.98	0.33	16.1
	Other	8	3.50	0.44	3.48	0.71	0.17	5.4

Note. The *n* represents the number of respondents who have both a pre- and post-trip self-rating in the factor. Results are not displayed where $n \leq 5$ respondents.

*Grade band was determined by the grade-level configuration of the sampled school, rather than by using the self-reported grade level of survey respondents.

Table D3. Day Trip *Future Science/Career Interests* Pre- and Post-Program Means, by Demographic Characteristics

Demographic Characteristic		<i>n</i>	Pre-Mean	Pre-Mean SD	Post-Mean	Post-Mean SD	Mean Diff	Mean % Change
Location	Urban	307	2.62	0.87	2.85	0.88	0.26	14.9
	Suburban	209	2.53	0.88	2.71	0.89	0.16	10.5
	Rural	382	2.85	0.82	2.98	0.83	0.12	6.5
Grade Band*	Middle	468	2.67	0.89	2.86	0.90	0.19	11.0
	High	430	2.73	0.83	2.89	0.83	0.16	9.6
Race/ Ethnicity	American Indian or Alaska Native	35	2.90	0.73	2.97	0.69	0.11	5.6
	Asian	76	2.48	0.75	2.79	0.81	0.26	12.9
	Black or African American	153	2.56	0.93	2.79	0.91	0.26	16.1
	Hispanic or Latino	87	2.56	0.87	2.84	0.86	0.30	17.7
	Native Hawaiian or Pacific Islander	-	-	-	-	-	-	-
	White/Caucasian	399	2.77	0.84	2.93	0.85	0.15	8.0
	Two or more races (Multi-racial)	70	2.82	0.85	2.82	0.90	0.07	4.9
	Other	47	2.82	0.92	2.95	0.86	0.07	7.8
Gender	Female	437	2.64	0.84	2.87	0.83	0.24	13.1
	Male	408	2.77	0.88	2.88	0.90	0.10	7.3
	Trans	6	2.50	0.94	2.71	0.71	0.08	4.2
	Other	7	3.32	0.64	3.14	1.00	0.00	1.0

Note. The *n* represents the number of respondents who have both a pre- and post-trip self-rating in the factor. Results are not displayed where $n \leq 5$ respondents.

*Grade band was determined by the grade-level configuration of the sampled school, rather than by using the self-reported grade level of survey respondents.

Appendix E: Day Trip Item-Level Responses by Factor

Table E1. Day Trip Item-Level Responses by Factor

Factor	Item	Pre/ Post	<i>n</i>	Very untrue of me	Somewhat untrue of me	Somewhat true of me	Very true of me
<i>Persistence</i>	1. I like to try new things.	PRE	1032	5%	12%	46%	37%
		POST	1032	4%	7%	38%	51%
	2. I am likely to try a new outdoor activity.	PRE	1023	8%	16%	36%	39%
		POST	1020	5%	9%	35%	51%
	3. I believe I will be able to accomplish the things I decide I want to do.	PRE	1009	5%	13%	42%	40%
		POST	1019	4%	8%	37%	51%
4. I think about ways to overcome challenges when trying something scary.	PRE	1004	9%	21%	39%	31%	
	POST	1008	6%	13%	39%	42%	
<i>Environmental stewardship</i>	5. I am interested in helping the environment.	PRE	1000	6%	14%	37%	43%
		POST	1008	5%	9%	37%	50%
	6. It is partly my responsibility to care for the environment.	PRE	1004	5%	14%	35%	46%
		POST	1003	5%	9%	33%	54%
	7. I know something I can do to make the environment better.	PRE	999	8%	19%	37%	36%
		POST	1003	6%	10%	36%	47%
<i>Future science/career interests</i>	8. I am interested in jobs where I would work in nature.	PRE	992	21%	29%	29%	21%
		POST	1009	15%	23%	32%	30%
	9. I am interested in jobs that have to do with science.	PRE	991	19%	25%	31%	25%
		POST	1004	16%	20%	34%	30%
	10. I am interested in science.	PRE	1003	15%	23%	31%	31%
		POST	1002	14%	17%	34%	36%
11. I would like to go on a field trip where I learn about science.	PRE	1003	14%	20%	32%	34%	
	POST	1009	12%	15%	31%	41%	

Appendix F: Extended Trip Results by Demographic Characteristics

Table F1. Extended Trip *Persistence* Pre- and Post-Program Means, by Demographic Characteristics

Demographic Characteristic		<i>n</i>	Pre-Mean	Pre-Mean SD	Post-Mean	Post-Mean SD	Mean Diff	Mean % Change
Race/ Ethnicity	American Indian or Alaska Native	-	-	-	-	-	-	-
	Asian	16	2.80	0.79	3.26	0.56	0.56	28.7
	Black or African American	25	2.96	0.77	3.30	0.57	0.33	18.9
	Hispanic or Latino	63	3.02	0.60	3.40	0.56	0.39	14.9
	Native Hawaiian or Pacific Islander	-	-	-	-	-	-	-
	White/Caucasian	74	3.06	0.56	3.33	0.52	0.39	11.0
	Two or more races (Multi-racial)	20	2.96	0.67	3.02	0.83	-0.02	-0.8
	Other	16	2.78	0.80	3.14	0.71	0.41	22.4
Gender	Female	95	2.95	0.63	3.22	0.68	0.28	11.0
	Male	115	3.03	0.64	3.36	0.54	0.34	15.0
	Trans	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-

Note. The *n* represents the number of respondents who have both a pre- and post-trip self-rating in the factor. Results are not displayed where $n \leq 5$ respondents.

Table F2. Extended Trip *Environmental Stewardship* Pre- and Post-Program Means, by Demographic Characteristics

Demographic Characteristic		<i>n</i>	Pre-Mean	Pre-Mean SD	Post-Mean	Post-Mean SD	Mean Diff	Mean % Change
Race/ Ethnicity	American Indian or Alaska Native	-	-	-	-	-	-	-
	Asian	16	3.08	0.68	3.29	0.79	0.19	10.6
	Black or African American	25	3.17	0.66	3.39	0.67	0.37	19.4
	Hispanic or Latino	62	3.12	0.63	3.34	0.61	0.25	10.1
	Native Hawaiian or Pacific Islander	-	-	-	-	-	-	-
	White/Caucasian	73	3.37	0.61	3.58	0.47	0.22	11.4
	Two or more races (Multi-racial)	22	3.17	0.60	3.29	0.77	0.12	6.2
	Other	15	3.15	0.78	3.35	0.75	0.27	11.8
Gender	Female	92	3.23	0.63	3.41	0.71	0.19	8.4
	Male	119	3.20	0.66	3.47	0.53	0.29	14.0
	Trans	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-

Note. The *n* represents the number of respondents who have both a pre- and post-trip self-rating in the factor. Results are not displayed where $n \leq 5$ respondents.

Table F3. Extended Trip *Future Science/Career Interests* Pre- and Post-Program Means, by Demographic Characteristics

Demographic Characteristic		<i>n</i>	Pre-Mean	Pre-Mean SD	Post-Mean	Post-Mean SD	Mean Diff	Mean % Change
Race/ Ethnicity	American Indian or Alaska Native	-	-	-	-	-	-	-
	Asian	16	2.09	0.72	2.65	0.73	0.42	26.2
	Black or African American	21	2.38	0.92	2.52	1.06	0.26	18.4
	Hispanic or Latino	58	2.68	0.85	2.94	0.85	0.25	11.6
	Native Hawaiian or Pacific Islander	-	-	-	-	-	-	-
	White/Caucasian	78	2.84	0.74	3.00	0.73	0.18	7.7
	Two or more races (Multi-racial)	20	2.81	0.81	2.95	0.87	0.12	4.1
	Other	17	2.78	0.83	3.03	0.83	0.25	11.6
Gender	Female	93	2.62	0.84	2.81	0.88	0.19	8.5
	Male	115	2.72	0.81	2.99	0.78	0.27	13.8
	Trans	-	-	-	-	-	-	-
	Other	-	-	-	-	-	-	-

Note. The *n* represents the number of respondents who have both a pre- *and* post-trip self-rating in the factor. Results are not displayed where $n \leq 5$ respondents.

Appendix G: Extended Trip Item-Level Responses by Factor

Table G1. Extended Trip Item-Level Responses by Factor

Factor	Item	Pre/ Post	<i>n</i>	Very untrue of me	Somewhat untrue of me	Somewhat true of me	Very true of me
<i>Persistence</i>	1. I like to try new things.	PRE	239	5%	15%	51%	29%
		POST	244	2%	7%	43%	48%
	2. I am likely to try a new outdoor activity.	PRE	235	7%	18%	42%	33%
		POST	240	3%	11%	39%	47%
	3. I believe I will be able to accomplish the things I decide I want to do.	PRE	237	5%	17%	49%	29%
		POST	240	4%	8%	45%	43%
4. I think about ways to overcome challenges when trying something scary.	PRE	233	6%	21%	48%	25%	
	POST	240	5%	9%	43%	43%	
<i>Environmental stewardship</i>	5. I am interested in helping the environment.	PRE	232	3%	12%	47%	38%
		POST	237	2%	8%	41%	49%
	6. It is partly my responsibility to care for the environment.	PRE	233	3%	12%	36%	49%
		POST	240	2%	7%	27%	65%
	7. I know something I can do to make the environment better.	PRE	233	3%	16%	46%	34%
		POST	240	3%	10%	36%	51%
<i>Future science/career interests</i>	8. I am interested in jobs where I would work in nature.	PRE	235	19%	30%	29%	21%
		POST	240	11%	18%	41%	29%
	9. I am interested in jobs that have to do with science.	PRE	232	17%	28%	31%	24%
		POST	240	16%	23%	30%	31%
	10. I am interested in science.	PRE	235	15%	23%	30%	32%
		POST	239	13%	15%	33%	38%
11. I would like to go on a field trip where I learn about science.	PRE	235	15%	21%	34%	29%	
	POST	238	13%	16%	34%	38%	