

Connection, Competence, and Contribution:

New Outcome Measures for Assessing Outdoor Program Impact on Urban Youth

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Paper presented at the Midwestern Educational Research Association Annual Meeting, Evanston, Illinois, November 7, 2013

Please cite as:

Sheldon, T., & Farnsworth, E. (2013, November). Francis Godwyll (Chair). *Connection, competence, and contribution: New outcome measures for assessing outdoor program impact on urban youth*. Paper delivered at Mid-Western Educational Research Association (MWERA), Evanston, IL. Retrieved from <http://www.mwera.org/annual-meeting-2013.html>

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Abstract

This paper describes a study that examined the impact of outdoor programming on urban youth. Data were collected from more than 700 fifth through eighth graders and 23 teachers who participated in the Urban Wilderness Canoe Adventures (UWCA) Mississippi River trip during the Minneapolis Public Schools' summer program. Researchers used student pre-/post-trip surveys and post-trip teacher surveys to assess the impact of the canoe trip on participants' attitudes and perceptions about the environment, engagement in learning, and connections to others. Results show the student participants were interested and highly engaged in the outdoor activities, developed connections with peers and supportive adults, and acquired new skills. Nearly four of every five students (79%) reported they had learned new skills, were more interested in science topics and the environment, and felt more connected with their peers. We argue studying non-cognitive competencies yields more information about the impact of outdoor programming on young people than depending solely on academic outcome measures.

Connection, Competence, and Contribution:

New Outcome Measures for Assessing Outdoor Program Impact on Urban Youth

Outdoor education programs and other out of school programs often struggle to demonstrate their value and impact on young people. Despite over a century of outdoor programming¹ and the vast array of programming available today, we lack the empirical evidence to unequivocally demonstrate these programs change youths' knowledge, attitudes, and beliefs about the environment (Gunderson, Barns, Hendricks & McAvoy, 2000). While most practitioners believe their wilderness education methods are effective, researchers rarely see evidence of significant changes in behaviors and skills, especially when academic outcome measures (i.e., changes in student grades, test scores, and attendance patterns) are used. Given the investments of money and time in these programs, researchers need to identify new methods for assessing program impact.

In a keynote address to the 2010 Outdoor Leadership Research Symposium, M. Deborah Bialeschki highlighted the need for researchers to look for better ways to demonstrate “the power of the natural world to reach people in a meaningful way” (Bialeschki, 2010, p. 123). Bialeschki called on researchers to document the outcomes of wilderness experiences and conduct research demonstrating how children's exposure to the wilderness increases their appreciation, knowledge, and concern for the environment.

¹ Note. Organization, *year founded*, and (current membership) based on organizational websites. YMCA, 1851, (9M); YMCA for African Americans, 1853; YWCA, 1858, (2M); 4H, 1902, (16M); Campfire, 1910, (1M); Boy Scouts of America, 1910, (2.7M); Girl Scouts of America, 1912, (2.3M)

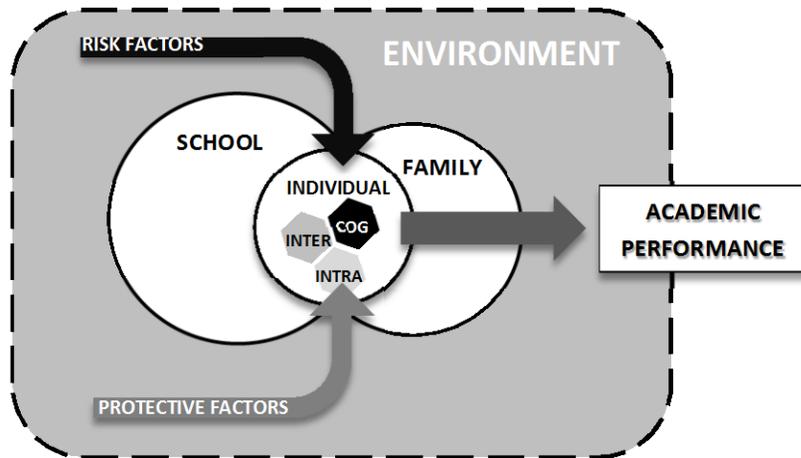
Theoretical Framework and Program Objectives

A Construct for Academic Performance

For this study, we combine elements from two theoretical frameworks. The Ecological Model of Child Development is included because it: 1) recognizes children function and interact across multiple contexts for example the family, school, and natural environment (Bronfenbrenner, 1977, 1986; Bowers, Li, Kiely, Brittan, Lerner & Lerner, 2010; Resnick, et. al., 1997); and, 2) the biological underpinnings of the model emphasize interactions between organism and environment including those forces acting upon individuals (protective factors and risk factors). We also include elements of an emerging construct of learning. Authors of these emergent models see academic performance (and future success) as the interaction of cognitive, interpersonal, and intrapersonal factors that contribute to academic performance (National Research Council, 2012; Farrington, C.A., et. al., 2012). A diagram of the combined framework, Figure 1, is the construct we used in this study to organize and analyze youth responses to Urban Wilderness Canoe Adventures (UWCA) activities.

Figure 1.

Diagram of the Combined Ecological-Learning Model



Specifically, we consider the protective factors that are found in the intrapersonal (*competence*) and interpersonal domains (*connection* and *contribution*).

Connection – We define *connection* as interpersonal linkages among people (peers, teachers, trip leaders), as well as, to the environment. Items that serve as indicators of connection include: a sense of belonging, relationships with peers, attitudes about teachers and trip leaders, interest in the environment, working as a team, and the like.

Competence – We include intrapersonal factors such as self-concept, self-efficacy, and personal agency as indicators of *competence*. Items that serve as indicators of competence include: learning new skills, reduction in fear or anxiety, a feeling of having many good traits, importance of getting good grades, and feeling skilled at observations and data collection.

Contribution – We understand *contribution* to mean the desire or intention to “give back” to others including: peers, the program, and society. Items that serve as indicators for contribution include: references to future actions, and learning things to help protect the environment.

UWCA Program Goals and Activities

The UWCA Program provides a continuum of experiences for urban youth. The stated goals of the UWCA program are to engage underserved, low and middle-income youth in a lifelong relationship with the outdoors, encourage environmental awareness, and foster leadership development.

The program is designed to foster a strong connection between youth and the natural environment through progressively deepening exposure to the outdoors. These activities are

intended to increase interest in the natural environment. By offering a series of engaging outdoor education experiences, program staff hope youth make personal discoveries that energize their learning and lead to improved academic outcomes. The development of interpersonal skills is another stated objective of the program. Program staff believe students working together in teams learn to value their own contributions and the contributions of others. Half-day trips and extended trips provide an opportunity for youth to get to know their teachers and peers in different ways, which may result in strengthening a child's bond to school.

The Mississippi River trip is the main introductory outdoor experience offered by the UWCA program. For six hours, participants canoe through the heart of the Twin Cities in the Mississippi National River and Recreation Area. The Mississippi National River and Recreation Area is a 72-mile corridor that passes through the downtowns of Minneapolis and Saint Paul. This urban wilderness corridor provides the opportunity to experience nature in an urban setting. The river is a habitat for hundreds of species of birds, fish, endangered mussels, and river otters. Groups paddle in 24-foot voyageur canoes beside limestone bluffs, beaches, and cottonwood trees, past historical, cultural, and geological landmarks such as Fort Snelling, sacred Dakota sites, and ruins of the fur trade and the milling industry.²

More intensive UWCA activities include overnight camping trips, winter camping trips, regional, multi-day camping trips, and wilderness trips to the Boundary Waters Canoe Area Wilderness and Glacier National Park in Montana.

² In a few cases, river conditions (high water) forced trip leaders to use an alternate trip canoeing through the chain of lakes in Minneapolis.

Methods

Participants

The subjects of this study were fifth through eighth graders who were enrolled in eight Minneapolis Public School (MPS) summer school sites and who participated in the UWCA canoe trip. A small percentage of those students did not participate or were absent on the day of the trip. The 30 summer school teachers who accompanied students on the Mississippi River field trip were also part of our research sample.

Minneapolis Public School's district data from the 2012-2013 school year revealed an ethnically diverse population of students and high levels of poverty for the eight schools participating in the UWCA trips. The analysis indicated more than two-thirds of students in the district were students of color and more than 80% of families were eligible for Free and Reduced Lunch (FRL) in seven of the eight school sites. Two of the program sites had eligibility rates over 98%. Free and Reduced Lunch eligibility highly correlates to both poverty and low socio-economic status. All students served by the MPS summer school program are academically underperforming, based on standardized test scores. These data demonstrate the UWCA program is serving a diverse population of students who require additional academic support and whose families are living at or near poverty.

At the conclusion of the summer program, 724 student pre-trip surveys and 430 post-trip surveys were collected. Using student identifiers, 304 surveys were matched. Our analysis primarily focused on these matched surveys. Of the 304 participants, 133 (44%) were female and 171 (56%) were male. Eighty-two percent of the student respondents identified themselves as students of color, while 18% identified themselves as "white."

Student Surveys

Summer school teachers administered the pre-trip survey to about 1,000 students during the first week of the summer session. Teachers administered the post-trip survey the day of or day after the field trip.

The two surveys have two sections in common. Both have a section called, *Personal Views* comprised of 12 items using a four-point rating scale (*Strongly Disagree (1) to Strongly Agree (4)*). Both surveys also have an *About You* section, used to collect data on student characteristics and family background.

The pre- and post-trip surveys also have unique features. For example, the pre-trip survey contains four open-ended items used to collect data about the students' pre-trip knowledge, attitudes, and concerns. Similarly, the post-trip survey includes a *Thoughts After the Trip* section consisting of 13 items related to the students' trip experiences using the same four-point rating scale as the *Personal Views* section. The post-trip survey also includes five multiple-choice items used to assess science content knowledge.

Rating scale items on the pre-trip and post-trip surveys were analyzed to determine group means for all items and to generate descriptive statistics on previous outdoor experiences and demographic data. Statistical comparisons were performed to compare pre-trip and post-trip ratings for significant differences among personal views. A thematic analysis was used for all open-ended responses on the pre-trip surveys. We used the Wilcoxon Signed-Rank test on all matched surveys. The Wilcoxon Signed-Rank test was used to compare pre-/post-trip responses because the data were paired, measured on an ordinal scale, and originated from the same

population. Moreover, the test does not require the assumption of normalcy. We also ran correlations on 13 paired survey items.

Teacher Survey

An online post-trip survey was administered to all summer session teachers who accompanied students on the river trips in 2013. A link to the online survey was sent to all teachers in early August during the last week of the summer school session. The survey link remained open for two weeks to allow teachers sufficient time to complete the survey.

The purpose of the survey was to collect teachers' perspectives on this introductory outdoor experience and to have them assess the impact of trip-related activities on their students. The teacher survey consisted of 18 rating scale items and two open-ended items. Teachers were asked to rate items using a six-point scale (*Strongly Disagree (1) to Strongly Agree (6)*). The items focused on benefits to students, student engagement, contribution to academic growth, and the overall value of experience to students. When possible, teacher survey responses were triangulated with student survey responses as an added measure of validity. Two open-ended items included in the survey afforded teachers the opportunity to share what surprised them most about the trip and what they believed to be the greatest benefits to youth participants.

Response frequencies were analyzed and reported for the rating scale items. A thematic analysis was conducted for open-ended items.

Results

Student Survey Findings

Key findings from the student survey (also shown in Table 1, below) are organized around the protective factors (*competence, connection and contribution*) described in the

framework. Open-ended item results, an analysis of pre- and post-trip personal views and supportive results from 2010 and 2012 follow the key findings.

Table 1.

Student Views on the UWCA Mississippi River Trip (N=304)

	STRONGLY DISAGREE	SLIGHTLY DISAGREE	SLIGHTLY AGREE	STRONGLY AGREE
1. I studied about the Mississippi River before coming on the trip.	15%	18%	41%	26%
2. My teacher prepared me for what would happen on this trip.	8%	7%	51%	34%
3. Because of this trip, I am more interested in the environment.	19%	8%	34%	39%
4. This was a new activity for me; I had never done anything like it before.	19%	26%	34%	21%
5. On the trip, I worked with others as a team.	6%	7%	60%	27%
6. Because of the trip, I feel closer to others-even people who weren't my friends.	21%	14%	32%	33%
7. Trip leaders were friendly to all students.	8%	5%	67%	20%
8. Trip leaders made learning fun.	9%	6%	51%	34%
9. Because of the trip, I feel more connected to my teachers.	21%	12%	30%	37%
10. I have learned things I can do to help protect the environment on this trip.	11%	7%	46%	36%
11. I learned new skills (paddling, running experiments, using equipment and tools).	13%	9%	48%	30%
12. I want to continue studying about science, because of the trip.	21%	10%	34%	35%
13. On the trip, I learned about environmental issues that affect the Mississippi River.	10%	7%	51%	32%

Connection.

Student responses to the *Thoughts After the Trip* section of the survey revealed student views of the trip were mostly positive. More than 65% of the 304 students agreed with 12 of 13 statements, with over 25% strongly agreeing with 11 of 13 statements. The highest ratings related to *teamwork* and *trip leader qualities*. Eighty-five percent of students agreed the “*trip leaders made learning fun,*” with 34% strongly agreeing with this statement. Likewise, 87% of the students agreed “*on the trip, I worked with others as a team*” and that “*trip leaders were friendly to all students.*” In line with these trends, 39% of students strongly agreed, “*because of the trip, I am more interested in the environment,*” and 37% felt “*more connected to my teachers*” following the trip.

Even on the items receiving the two lowest ratings, more than half the respondents were in agreement. Item #4 asked students whether this was a new activity for them; and Item #6 asked whether they felt closer to others after the trip. Fifty-five percent of students responded the trip was a novel activity, and 65% feel closer to others, even those who weren’t my friends, because of the trip.

In addition to student reports of increased connectedness to others and the environment, thirteen paired items were found to have statistically significant correlations. These correlations related to competence and connection. Pearson’s r is reported as a measure of effect size for each association between student responses on the items listed in Table 2. *Relationships Between Belonging, Teamwork, Trip Leaders and Learning* (see Appendix, page 20). The squared correlation coefficient (r^2) represents the percentage of the variance explained by the association between the items.

These analyses indicated moderate positive relationships between student belonging at school and: 1) connection teachers, 2) ability to work as a member of a team, and 3) self-perception of positive qualities. Likewise, when students reported they had an opportunity to work as a member of a team on the trip, their connection to others, even non-friends, increased. This suggests a moderate positive correlation between teamwork and peer relationships.

Similarly, results suggested moderately strong positive relationships between the quality of the trip leaders and the students' acquisition of knowledge and new skills. For instance, for those students who reported trip leaders were fun, they also tended to report a desire to continue studying science and learning about environmental issues. When students reported trip leaders were friendly, they also tended to report they were working as a team, learning about the environment, acquiring new skills, and wanting to continue to study science.

Competence.

Based on the student responses, even the short six-hour canoe trip resulted in students feeling more capable. For example, 82% of students agreed, and 36% of students strongly agreed, with the statement *"I have learned things I can do to help protect the environment on this trip."* Similarly, 83% of the respondents indicated they agreed they *"learned about environmental issues that affect the Mississippi River."* Seventy-eight percent of the respondents agreed with the statement, *"I learned new skills (paddling, running experiments, using equipment and tools)."*

The trip also seems to have had an impact on the teens' science attitudes with about two-thirds (69%) indicating they *"want to continue studying about science because of the trip."* Thirty-five percent of these students strongly agreed with the statement.

Contribution.

Student responses to the *Thoughts After the Trip* section of the post-trip survey (refer to Table 1.) suggest students learned ways to “give back” to the environment. For instance, 82% of students agree with the statement “*I have learned things I can do to help protect the environment on this trip.*” Over 83% of students also reported learning about “*environmental issues that affect the Mississippi River.*”

Open-Ended Item Results.

The pre-trip survey included four open-ended questions. Responses to the questions align with the concepts of connection, competence and contribution. Specifically, student responses reference a desire to: spend time with friends, work as a member of a team, learn new skills, learn about the environment, or address concerns and fears.

When youth were asked, “...*what are you most looking forward to?*” 38% of students looked forward to outdoor activities such as fishing, canoeing or swimming. Thirty-five percent of students looked forward to learning about nature or seeing animals, and 17% looked forward to having fun with friends. Two percent of students noted they did not want to drown or fall out of the canoe, and the remaining eight percent provided other miscellaneous answers.

Students were also asked to identify what they hoped to learn while on the trip. Most students (67%) wanted to learn about the river and the wildlife living in or around the Mississippi. Twenty-four percent of students hoped to learn how to canoe, including boater safety. Three percent of students stated a desire to learn how to swim, and another 3% were interested in knowing more about river pollution. Two percent wanted to get to know their classmates and work as a team while the remaining 1% were interested in how the river lock system functions.

Students were also asked if they had any concerns about the river trip. Sixty-three percent of students had no concerns about the trip. However, slightly over one-third of participants (37%), indicated they *did* have some concerns. Common concerns included: falling out of the canoe, being attacked by an animal in the river (e.g., alligator, shark, fish, etc.), and drowning. These concerns and misperceptions regarding the river wildlife were very consistent with responses from 2010 and 2012.

Finally, students were asked to identify which “*other activities have you been on before?*” Twenty-eight percent of students had previously participated in a Mississippi river trip, 20% identified the Journey to the Falls canoe trip as a past experience, 17% attended a Ranger Talk in their classroom and 16% had participated in the Big River Journey prior to this trip. An additional 19% of students identified other activities, such as hiking or camping with their families.

Change in Student Personal Views.

Three hundred and four students rated 12 statements regarding their personal views pre- and post-trip based on a four-point scale (*Strongly Disagree* (1) to *Strongly Agree* (4)). Table 3. *Pre- and Post-Trip Student Personal Views’ Mean Survey Responses and Wilcoxon Signed-Rank Test Results* (see Appendix, page 21) presents the results of a Wilcoxon Signed-Rank test and the mean ratings of students prior to the trip and after the trip for the statements (For example, a rating of 3.0 means that the mean response is *Slightly Agree*. For example, a mean response of 3.5 is halfway between *Slightly Agree* and *Strongly Agree*). The students’ mean response to eight of the 12 statements changed in the anticipated direction following the river trip, up, although these changes were not statistically significant. On average, students responded with more

agreement to items #2, #5, #6, #7, #8, #10 and #11, and they felt less fear following the trip as indicated in the students' responses to item #9.

Results of a Wilcoxon Signed-Rank test of the students' pre- and post-trip responses reveal only one statistically significant difference in personal views as a result of the trip. Following the trip, students display more agreement with the statement "*Environmental problems are not as bad as most people think,*" ($Z = -2.256, p = 0.024$). This result was unexpected; as it was expected the mean rating for item #4 would decrease following the trip. Perhaps students seeing the forested bluffs, wildlife, and clear water believed pollution was not a problem whatsoever, but this is only one possible explanation.

Literature on outdoor adventure programs suggests a number of reasons that personal views may not have changed significantly as a result of the Mississippi River trip. First, research indicates that wilderness programs of longer duration have a greater impact on participants' personal, social, and academic development. The Mississippi River trip was conducted in one day, less than eight hours of outdoor activity. Second, the intensity of the program, which depends on the types of activities, level of risk, and program setting effect program impact. This field trip was designed to give students the opportunity to experience nature in a metropolitan area, providing historical and environmental information about the river. As such, it was intended to be an introductory experience, rather than a high-intensity activity designed to result in significant personal change.

Supportive Findings 2010-2013.

Supportive findings from 2010 and 2012 augment the data we collected in 2013. As demonstrated in Table 4. *Student Agreement with 2010-2013 UWCA Trip Statements* (see Appendix, page 22), the student post-trip questionnaire responses from 2010 and 2012 are

consistent with student responses from the current year (2013). Across study years, over 70% of students agree they are more interested in the environment, worked as a member of a team, believed trip leaders were friendly, learned how to protect the environment and learned new skills as a result of the trip. More than 60% of students in 2012 and 2013 reported feeling closer to peers and learning about environmental issues impacting the river as a result of the trip. Approximately 60% of students from each year wanted to continue studying science after participating in the canoe trip. Over 70% of the youth had previously experienced only one or two outdoor experiences in their lifetimes.

Teacher Survey Findings

Findings from the teacher survey are organized using two of the protective factors (competence and connection) described in the framework and displayed in Table 5. *Teacher Views on UWCA Mississippi River Trip* (see Appendix, page 23). Responses to the open-ended survey items are also reported.

Connection.

Teachers' highest ratings related to the trip leaders and student engagement. One-hundred percent of teachers agree with the statements "*trip leaders were friendly to all students,*" and "*trip leaders were knowledgeable.*" Likewise, 85% of teachers agreed with the statements "*my students exhibited a high level of engagement...*", "*students worked with their peers effectively...*", and "*students talked about the river experience after the trip in class.*" These results supported the students' post-trip survey responses regarding quality of the leaders and connection to other peers.

Competence.

Over 90% of teachers agreed with the statements “...students with fewer outdoor experiences especially benefited...,” “students had fun on the trip,” “Overall, I think the trip was a valuable experience for my students,” and “students learned new skills on the trip.” Eighty-five percent of teachers also felt students benefited academically from the trip. The teacher responses supported the results of the student surveys, indicating student learned new skills and developed capabilities as a result of the trip.

Open-ended Items.

Teachers were asked to answer two open-ended questions. When asked to complete the sentence: *I believe that the greatest benefit to students that a trip like this offers is...*, 11 of 15 teachers, who responded to this item, referenced the students’ access to “new experiences” and/or “hands-on/applied learning opportunities.” On the second open-ended question, 20% of teachers reported they were most surprised by the positive behavior they observed during the trip in students who typically struggle with behavior in the classroom.

Discussion

We found youth participation in outdoor programming resulted in a greater sense of connection with peers and the natural world, increased competence in one’s skills and abilities, and the knowledge needed to make valuable contributions to protect the environment. The research findings from earlier work, whether the data was collected from students, teachers, or former youth participants, also support these findings.

Connection

Our findings show even a six-hour introductory canoe trip can strengthen youth connections with peers and teachers. Similarly, exposure to novel outdoor experiences fed

interests in and connections with the outdoors. Teacher responses corroborated these results, indicating students were highly engaged throughout the trip and spoke about their experiences even after the trip. Researchers noted that UWCA river trips and more intensive trips resulted in greater self-reported connections to the natural environment, peers, and supportive adults.

The literature revealed, and this study confirmed that outdoor programs have significant positive effects on students' social competence. Virtually all of our data supported this claim. Eighty-seven percent of the Minneapolis students said that they "worked as a team" on their River trip. Qualitative observational data from their teachers showed positive student interactions and group dynamics occurring as students navigated canoeing down the River together. Teachers noted the trip "really brought students together," how well "students cooperated" in their canoes, and the experience involved "community building."

Past evaluations also supported the 2013 findings. For instance, data collected from student surveys in 2012, demonstrated a recurrent theme that personal development during trips corresponded to practicing interpersonal and social skills. Trip evaluation surveys and interview transcripts showed students learning "cooperation," "teamwork," "good communication skills," and "acceptance of others" through UWCA experiences. Further, students cited that "meeting new people" was one of the biggest trip benefits.

Competence

The outdoor adventure literature and the trip leaders identified personal development as an important outcome of wilderness programs. While our research did not show statistically significant changes in personal views among the students participating in the Mississippi River trip, the literature suggests a number of reasons why this result may have occurred. For instance, the sensitivity of our surveys may not have captured changes in student attitudes that actually

took place; or, the limited “dosage” of programming and the lower demands associated with the river trip may not demonstrably affect personal growth. Still, participants did report having learned new outdoor skills implying increased competence levels. Nearly all teachers (96%) believed students acquired new skills while on the trip.

Some literature suggests that personal growth, such as independence, may begin to develop during a program and continue to increase after a program ends. Follow-up studies may be necessary to determine if indeed personal development has been impacted.

Contribution

The literature suggests that outdoor education increases students’ awareness and appreciation of nature and the environment. Yet there are few studies that document those changes. The data from our UWCA evaluation shows that those changes do occur. Eighty-three percent of Minneapolis Public School students and 87% of their teachers agreed that the students learned about environmental issues during their Mississippi River trip. Eighty-two percent of the students agreed that due to the trip they learned ways to help protect the environment.

Additionally, 96% of the teachers believed students would have more positive attitudes towards the environment as a result of the trip. Several teachers wrote in their responses that learning about nature and the environment was one of the trips’ greatest benefits.

Other Benefits

Teacher data indicated that UWCA trips offered students some academic benefits in addition to social benefits. In fact, 92% of the Minneapolis School teachers stated that the Mississippi River trip benefitted their students academically and they believed that students their students were more interested in science as a result of the trip. Eighty-seven percent of those teachers also reported that an outcome of the trip was a deeper engagement of learning among the students. Teachers’ qualitative comments showed that the trip was connected in some way to

classroom learning. For example, one teacher said the trip connected to her teaching theme of “aquatic organisms” while another teacher mentioned that the trip “put classroom learning into a real context.”

Conclusion

This study has argued that including measures of non-cognitive factors into the research design of outdoor education programs may be helpful in demonstrating the value and impact of outdoor programming on teens. While we are only in the early stages of developing valid and reliable instruments for this purpose, we believe this approach is especially apt for virtually all out of school programming, especially those that do not explicitly emphasize academic content. We see the conceptual framework articulated here as a starting point for future work. We believe research that seeks to develop new methods to detect changes the protective factors such as connections, competence, and contribution in young people will be invaluable.

Appendix

Table 2.

Relationships Between Belonging, Teamwork, Trip Leaders and Learning (N=304)

	<i>r</i>	<i>r</i> ²
Trip leaders made learning fun. I want to continue studying about science because of the trip.	0.577	.333
Trip leaders were friendly to all students. On the trip, I worked with others as a team.	0.515	.265
Trip leaders made learning fun. I have learned things I can do to help protect the environment on this trip.	0.506	.256
Trip leaders were friendly to all students. On the trip, I learned about environmental issues that affect the Mississippi River.	0.495	.245
Trip leaders were friendly to all students. I have learned things I can do to help protect the environment on this trip.	0.483	.233
Trip leaders were friendly to all students. I learned new skills (paddling, running experiments, using equipment and tools).	0.469	.220
Trip leaders made learning fun. On the trip, I learned about environmental issues that affect the Mississippi River.	0.460	.212
Trip leaders made learning fun. I learned new skills (paddling, running experiments, using equipment and tools).	0.453	.205
When I am in school, I feel like I belong. On the trip, I worked with others as a team.	0.383	.147
When I am in school, I feel like I belong. I feel that I have a number of good qualities.	0.369	.136
On the trip, I worked with others as a team. Because of the trip, I feel closer to others – even people who weren’t my friends.	0.362	.131
Trip leaders were friendly to all students. I want to continue studying about science because of the trip.	0.337	.114
When I am in school, I feel like I belong. Because of the trip, I feel more connected to my teachers.	0.322	.104

Table 3.

Pre- and Post- Trip Student Personal Views' Mean Survey Responses and Wilcoxon Signed-Rank Test Results (N=304)

	PRE-TRIP AVE	POST-TRIP AVE	Z	p
1. When I am in school, I feel like I belong.	3.08	3.05	-0.114	0.910
2. I like learning in small groups.	3.06	3.09	-0.684	0.494
3. I prefer learning through hands-on activities.	3.23	3.22	-0.190	0.850
4. Environmental problems are not as bad as most people think.	2.44	2.58	-2.256*	0.024*
5. I feel that I have a number of good qualities.	3.25	3.29	-0.952	0.341
6. I like learning about science.	3.01	3.09	-1.073	0.283
7. It is important for me to get good grades.	3.59	3.64	-1.662	0.096
8. My family doesn't like to do outdoor activities.	1.87	1.89	-0.329	0.742
9. I am afraid of getting sick or hurt while canoeing or walking in the woods.	2.13	2.06	-0.957	0.338
10. My parents think it is important to learn about nature.	3.01	3.10	-1.423	0.155
11. School is harder for me than it is for my classmates.	2.15	2.21	-0.942	0.346
12. I am skilled at observing and recording data.	2.87	2.80	-0.835	0.404

*Significant result with $\alpha=.05$.

Table 4.

Student Agreement with 2010-2013 UWCA Trip Statements

	2010	2012	2013
Because of this trip, I am more interested in the environment.	77%	--	73%
This was a new activity for me; I had never done anything like it before.	33%	30%	54%
On the trip, I worked with others as a team.	--	88%	87%
Because of the trip, I feel closer to others-even people who weren't my friends.	--	67%	65%
Trip leaders were friendly to all students.	--	91%	87%
I have learned things I can do to help protect the environment on this trip.	--	82%	82%
I learned new skills (paddling, running experiments, using equipment and tools).	--	71%	78%
I want to continue studying about science, because of the trip.	63%	59%	68%
On the trip, I learned about environmental issues that affect the Mississippi River.	60%	84%	83%

Table 5.

Teacher Views on UWCA Mississippi River Trip (N=23)

	Strongly Disagree	Disagree	Slightly Disagree	Slightly Agree	Agree	Strongly Agree
Trip leaders were friendly to all students.	0%	0%	0%	0%	19%	81%
Trip leaders were knowledgeable.	0%	0%	0%	0%	14%	86%
The trip was well organized.	0%	0%	5%	5%	24%	66%
I believe students with fewer outdoor experiences especially benefited <i>from</i> the trip.	0%	0%	0%	9%	29%	62%
I believe students learned new skills on the trip.	0%	0%	0%	9%	29%	62%
My students exhibited a high level of engagement on the trip (i.e., paid attention, respected others, participated enthusiastically).	0%	9%	0%	5%	38%	47%
The majority of my students worked with their peers effectively on the trip.	0%	5%	5%	5%	33%	52%
I believe students had fun on the trip.	0%	5%	0%	0%	33 %	62%
I believe my students benefited academically from going on the trip.	0%	0%	0%	14%	38%	48%
My students talked about the river experience in class after the trip.	0%	0%	5%	10%	52%	33%
Overall, I think the river trip was a valuable experience for my students.	0%	0%	0%	5%	33%	62%

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