

IslandWood Evaluation Project Executive Summary

Assessment of Student Outcomes from IslandWood's School Overnight Program



February 24, 2009

Prepared by:

Dr. Anne R. Kearney
Kearney Consulting
kearneyconsulting@alexanne.net

Prepared for:

IslandWood
4450 Blakely Avenue NE,
Bainbridge Island, WA 98110

Acknowledgements

This evaluation project was a collaborative effort between the IslandWood staff and Kearney Consulting and was completed with the assistance of numerous others. Funding for the project was generously provided by the Paul G. Allen Family Foundation. Special thanks are due to Shelley Stromholt, IslandWood's Research Coordinator, for her incredible work in organizing and overseeing many aspects of the project. The insights and assistance of Pat Guild O'Rourke and Clancy Wolf were also instrumental in shaping this project. Thanks also to the IslandWood graduate student class of 2008 for their assistance with assessment tool administration, to Molly Eisenberg, Soren Burns, Samantha Brower, Devon Morris, and Déana Scipio for assistance with data collection and entry, to Cathy Sanford for her organizational expertise, and to John Haskin for embracing this project in progress.

Chuck Lennox, of Cascade Interpretive Consulting, was involved in the project from its earliest stages and provided valuable suggestions as did the rest of the project's Advisory Board, which included: Andrea Anderson (Sound View Evaluation and Research), Susan Bullerdick (Center for Ocean Sciences Education Excellence), Belinda Chin (Seattle Parks and Recreation), Bev Clevenger (Curiosity Unlimited Consulting), Denise Dumouchel (IslandWood), Janice Fournier (University of Washington), John Frederiksen (University of Washington), Frank Hein (Pacific Science Center), Tracie Johannessen (North Cascades Institute), Min Li (University Of Washington), Marie Marrs (retired teacher), Mike Mercer (formerly of Seattle Public Utilities), Lori Midthun (Bainbridge Youth Services), Kathryn Owen (Woodland Park Zoo), Kayleen Pritchard (Pacific Education Institute), Abby Ruskey (Environmental Education Association of Washington), Stephanie Stowell (Woodland Park Zoo), Margaret Tudor (Pacific Education Institute), and Gilda Wheeler (Office of Superintendent of Public Instruction).

Finally, a special thanks to the teachers and students who participated in this study for allowing us into their classrooms and sharing their thoughts and perspectives.

Suggested Citation:

Kearney, A.R. (2009). *IslandWood Evaluation Project Executive Summary*. Bainbridge Island, WA: IslandWood.

Study Overview

The purpose of the IslandWood Evaluation Project was to explore and evaluate the outcomes of IslandWood's School Overnight Program (SOP) with respect to five key outcomes: 1) students' personal development, 2) classroom community, 3) relationship with the environment, 4) environmental knowledge, and 5) attitudes toward learning. The study was conducted in two phases during the fall and winter of 2007/2008.

Phase One included 350 students from six schools and used a structured survey to provide a broad look at short and medium-term outcomes. Students were surveyed in the classroom at three time points: prior to coming to IslandWood, one week after the SOP, and again 6 to 8 weeks later. In addition to the survey, several assessment tools administered at IslandWood were used to explore outcomes with respect to students' environmental knowledge. These tools included a "clicker questionnaire" (administered through the use of slides and handheld clicker devices) to assess changes in factual knowledge and a cognitive mapping tool to assess changes in conceptual knowledge. Students were assessed at the beginning and end of their IslandWood stay.

Phase Two, which included 478 students from eight schools, built on Phase One results by continuing the exploration of student learning outcomes. Specifically, Phase Two: (1) addressed the longevity of knowledge changes by assessing learning before coming to IslandWood and at two time points following the SOP and (2) tested the attribution of changes to the SOP (versus other classroom experience) by using a control group. In addition to the assessments of knowledge, several narrative assessment tools administered at IslandWood allowed a more in-depth look at what happens to students during their time at IslandWood, particularly with respect to personal development and team dynamics.

Study Highlights

Highlights from both phases of the study are organized below according to the original research questions.

Does IslandWood's SOP Affect Students' Personal Development?

Personal development is clearly happening at IslandWood, but not in a way that is reflected in changes in general self-image measures. Phase One survey results showed no statistically significant change in a structured "self-image" measure for students attending IslandWood. Student responses to open ended questions, both on the survey and on the on-site narrative measurement tools, however, indicate that students do discover things about themselves during the SOP. Some of these discoveries are related to skills, strengths, and expertise, such as newly discovered interpersonal skills, the ability to work well in a team, learning/observation skills, and the ability to overcome fears and "tough it out." Other students became more aware of their own personalities and styles, discovering, for example that they can control their anger, be a good leader, need time alone, or prefer to blend with the group rather than be the center of attention. These findings with respect to personal development have implications both in terms of developing realistic goals for residential education programs around personal development and in terms of how changes related to personal development are assessed.

What aspects of the SOP have the greatest effects on personal development? Of all the experiences at IslandWood, the time spent working with a team may have the strongest effect. Students most frequently listed working with a team as the most challenging experience during the SOP and the one that made them think the most. It is likely that the challenges and mental effort involved in working with a team led to increased self awareness for many students.

Does IslandWood's SOP Affect Classroom Community?

Study results show improvements in group functioning and behavior over the course of the IslandWood stay. The number of students who reported that their group was not functioning well dropped from 19% at the start to 7% at the end of the SOP and an additional 7% of students reported their group's functioning was "improved" over the same period. The number of students who indicated that other group members "aren't nice/ don't treat them well" dropped from 15% to 10% by the end of the SOP.

Study results also provide evidence that these team experiences translate to improved teamwork back in the classroom, both in the short and medium term, for those with room for improvement in this area. Survey results showed a statistically significant increase in classroom cooperative teamwork for the treatment group following the SOP (a 21% increase, among those whose initial scores showed room for improvement). Scores did not change significantly between the Post 1 and Post 2 assessments, indicating that the SOP benefits were retained in the medium term. No significant changes were found for the control group on cooperative teamwork.

Although improved teamwork back in the classroom is likely related to students having to work through team-related challenges in the field, study results say little about *how* or *why* team functioning improved. Students were asked about the most challenging aspect of working in a group and how they worked through those challenges, but responses tended to be vague. This is not surprising as it can be difficult to describe and assess group behavior when one is a group participant. In the future, other measurement tools such as direct observation by third parties may be more effective at exploring the progression of group work.

Does IslandWood's SOP Affect Students' Relationship with the Environment?

Students who attended IslandWood showed significant increases in precursors to environmental stewardship (including environmental interest and comfort in nature) as well as an increased sense of stewardship and positive changes in conservation behavior.

All students, and particularly those with room for improvement, tended to be more comfortable in nature following the SOP, largely because of increased experience and familiarity with natural environments. Students in the treatment group with room for improvement on this variable showed a statistically significant increase of 57% in comfort with nature following the SOP. Comfort scores did not drop significantly between the Post 1 and Post 2 assessments, indicating that changes in comfort levels are sustained in the medium term. No statistically significant changes were found for the control group.

Students also showed increases in environmental interest and concern and in sense of environmental stewardship, both as measured by structured survey questions (for those whose

initial scores showed room for improvement) and as measured by open ended questions. Survey results showed a statistically significant increase for the treatment group of 11% in environmental interest and concern and of 19% in sense of environmental stewardship following the SOP. Scores did not drop significantly between the Post 1 and Post 2 assessments, indicating that the gains were sustained in the medium term. No significant changes were found for the control group on these variables.

How might these changes in comfort, interest, and feelings of stewardship translate to behavior and career choice? Results show that interest in environmental careers was significantly higher for students after the SOP (a 19% increase), among those with room for improvement, and did not decline significantly in the medium term. Study results also provide some evidence for increased pro-environmental behaviors, with 18% of students indicating new or increased behaviors following the SOP, such as recycling, composting, and picking up garbage.

Does IslandWood’s SOP Affect Students’ Environmental Knowledge?

Students’ environmental knowledge increased significantly as a result of their IslandWood experience. Increases were found with respect to both factual knowledge and to how students conceptualize “healthy” environments. In the analyses of overall factual environmental knowledge, statistically significant increases of between 28% - 38% were found following the SOP. There was no significant decline in knowledge scores during the Post 1 to Post 2 time period, indicating that knowledge is retained in the medium term. No significant changes in knowledge scores were found for the control group.

Cognitive mapping results from Phases One and Two showed that students’ conceptual knowledge related to “healthy environments” also increased as a result of the SOP. Following the SOP, students had a richer conceptualization of healthy environments and showed a greater awareness of: connectivity and relationships among elements in the environment, the abiotic elements that support a healthy environment, and the importance of stewardship in maintaining healthy environments. To some extent, students who attended the SOP were also more likely to conceptualize people as part of a healthy natural environment. These changes in conceptual knowledge align with study results showing increased sense of environmental stewardship, feelings about the environment, and conservation behaviors.

Results from both the factual and conceptual knowledge assessments showed that following the SOP students were more aware of terminology taught at IslandWood (e.g., “consumers,” “producers”), but cognitive mapping results indicate that they had not necessarily fully integrated these new concepts into their existing knowledge. While this result is not surprising given the relatively short duration of the SOP, it does highlight an opportunity for increased impact by providing additional opportunities for systems thinking as part of the SOP curriculum.

Does IslandWood’s SOP Affect Students’ General Learning Attitudes and Skills?

Do students tend to become more engaged and interested in learning, in general, because of their SOP experience? Study results indicate that students enjoy and are engaged by the hands-on, experiential teaching style of the SOP, and that they may become more aware of their learning abilities and the benefits of particular learning tools, such as observation. Survey results,

however, indicate that the SOP experience does not necessarily translate into global changes in attitudes toward and engagement in learning in the classroom. No statistically significant changes in survey-based scales assessing interest in learning, school attachment, and learning engagement were found for students following the SOP.

Implications of Research Methods and Tools

Study results show the value of a multi-phased, multi-tool approach to assessment. Conducting the study in two phases allowed for a general assessment of SOP outcomes and a more focused look at some of those outcomes. The use of multiple measurement tools permitted an exploration of multiple dimensions of particular constructs and, hence, provided a much richer picture of SOP outcomes than any single tool would have alone.

Several innovative assessment tools were developed for this study that were effectively embedded in students' residential experience, and would be useful in future assessments (both formative and summative). These tools include: the Healthy Environments 3CM cognitive mapping tool, the hand-held clicker questionnaire, and several narrative assessment tools.

Study Generalizability

Study participants reflect the range of students who attend IslandWood's SOP in terms of grade level, socio-economic status, and geographic location. Hence, we can assume high generalizability of the study results to similar student populations. Because the study only explored the outcomes of IslandWood's SOP program, and did not sample other residential environmental education (EE) programs, results are not directly generalizable to other programs. Study results do, however, have important implications for other residential EE programs.