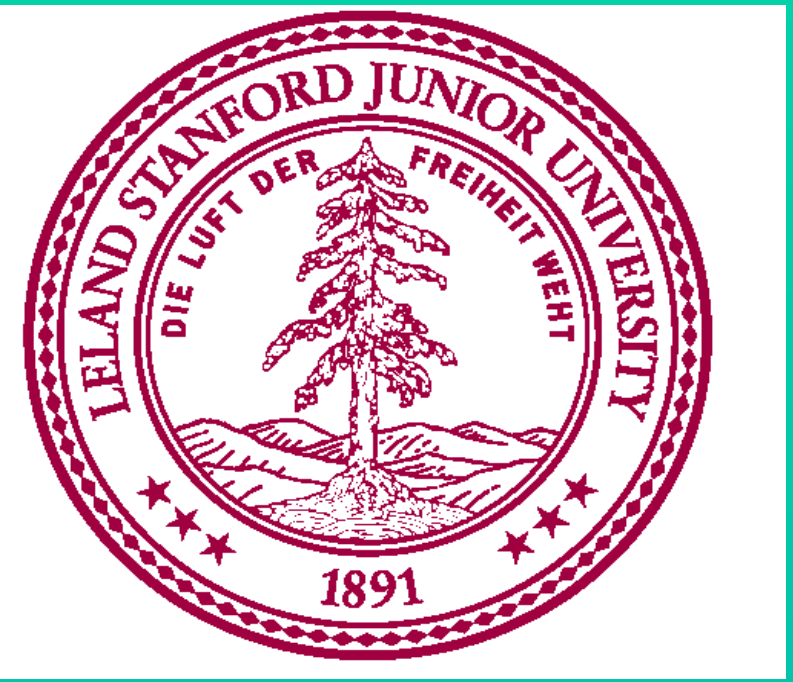




Evaluating experiential education through an intertidal ecology field trip

Kate Lowry^{1,2}, Cynthia Wilber^{1,3}, and Rodolfo Dirzo^{1,3}

¹Stanford University, ²SEEDS, ³Jasper Ridge Biological Preserve



INTRODUCTION

How can universities and student organizations create lasting positive change for under resourced high school students in urban environments using an ecological hands-on learning model?

SEEDS, Stanford University, and the REAL Program have created a replicable, sustainable model that integrates the university with the high school district using a tiered mentoring strategy.

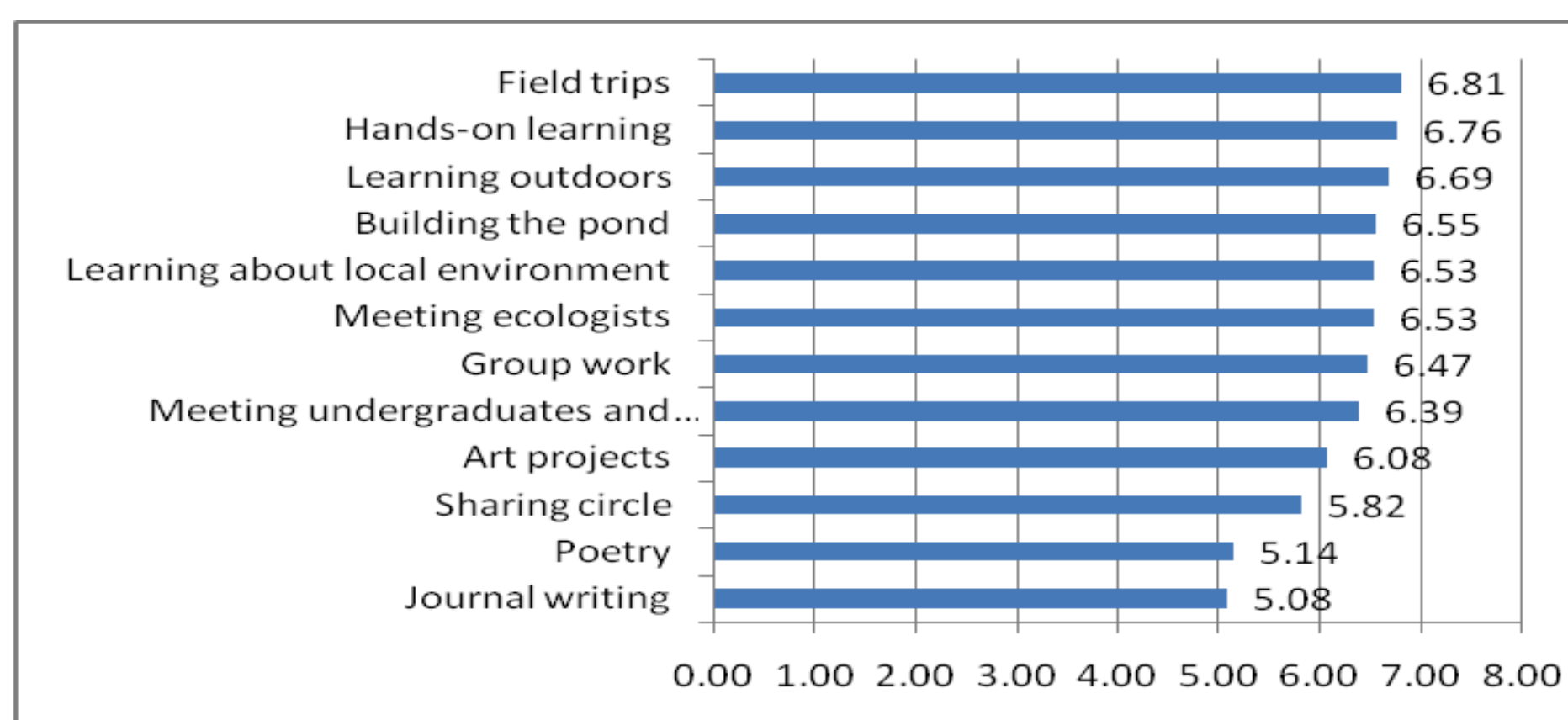
THE FIELD TRIP

On April 3, 2009, SEEDS, Stanford students, REAL students, School of Earth Sciences staff, and Jasper Ridge staff and affiliates traveled to Fitzgerald Marine Reserve in Half Moon Bay, California, to explore the rocky intertidal zone during a minus tide.

Scaffolding/pre-teaching occurred the week before and included identification of common tide pool species (including larval stages), ecological niches, and defense mechanisms. Students were able to use this information to build an experiential framework of their own knowledge at the marine preserve.

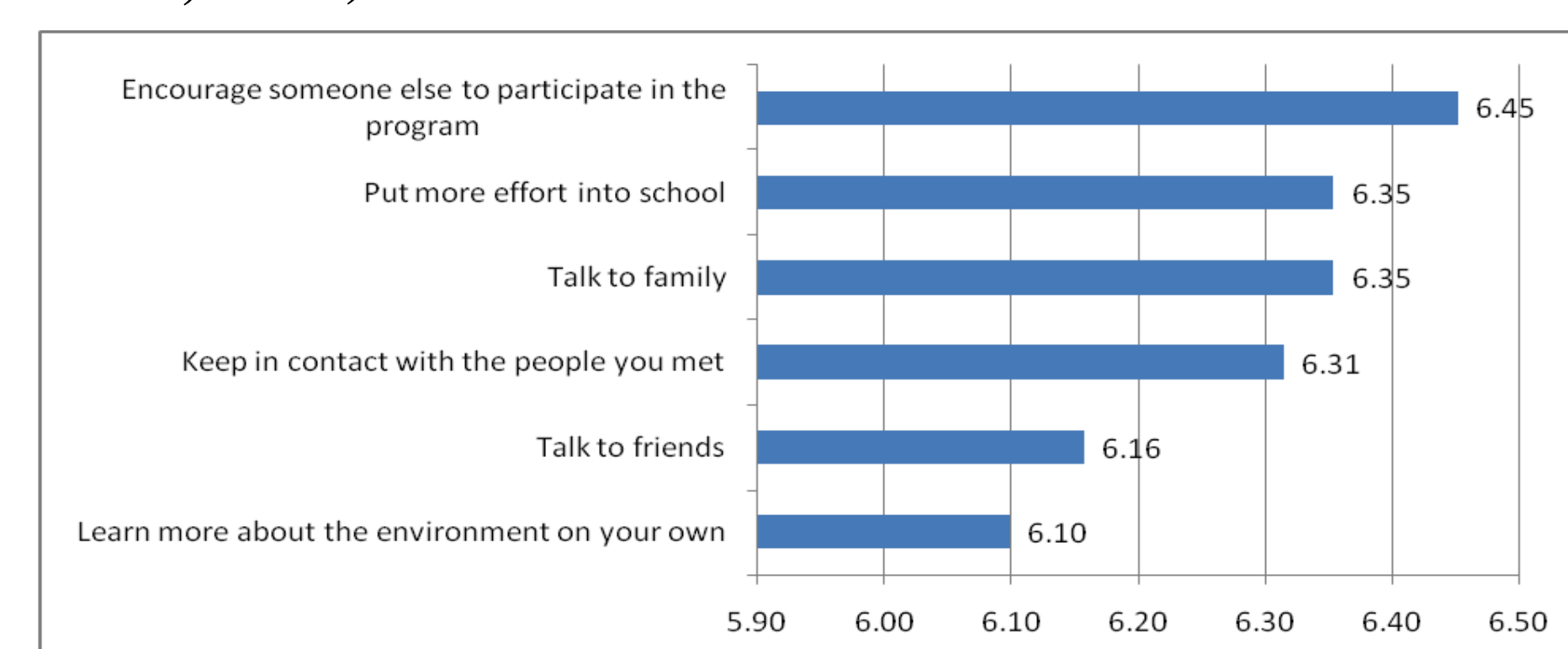
Following the field trip, students recorded their experience in journals and completed a post-trip questionnaire.

Question 1: How much did you enjoy the following aspects of the REAL program? (1-7 scale, N=51)



Data courtesy of M. Armstrong, Evaluator: Stanford K-12 Initiative Grant

Question 2: After participating in the REAL program, how likely are you to: (1-7 scale, N=51)



Data courtesy of M. Armstrong, Evaluator: Stanford K-12 Initiative Grant

ABSTRACT

Background/Question/Methods

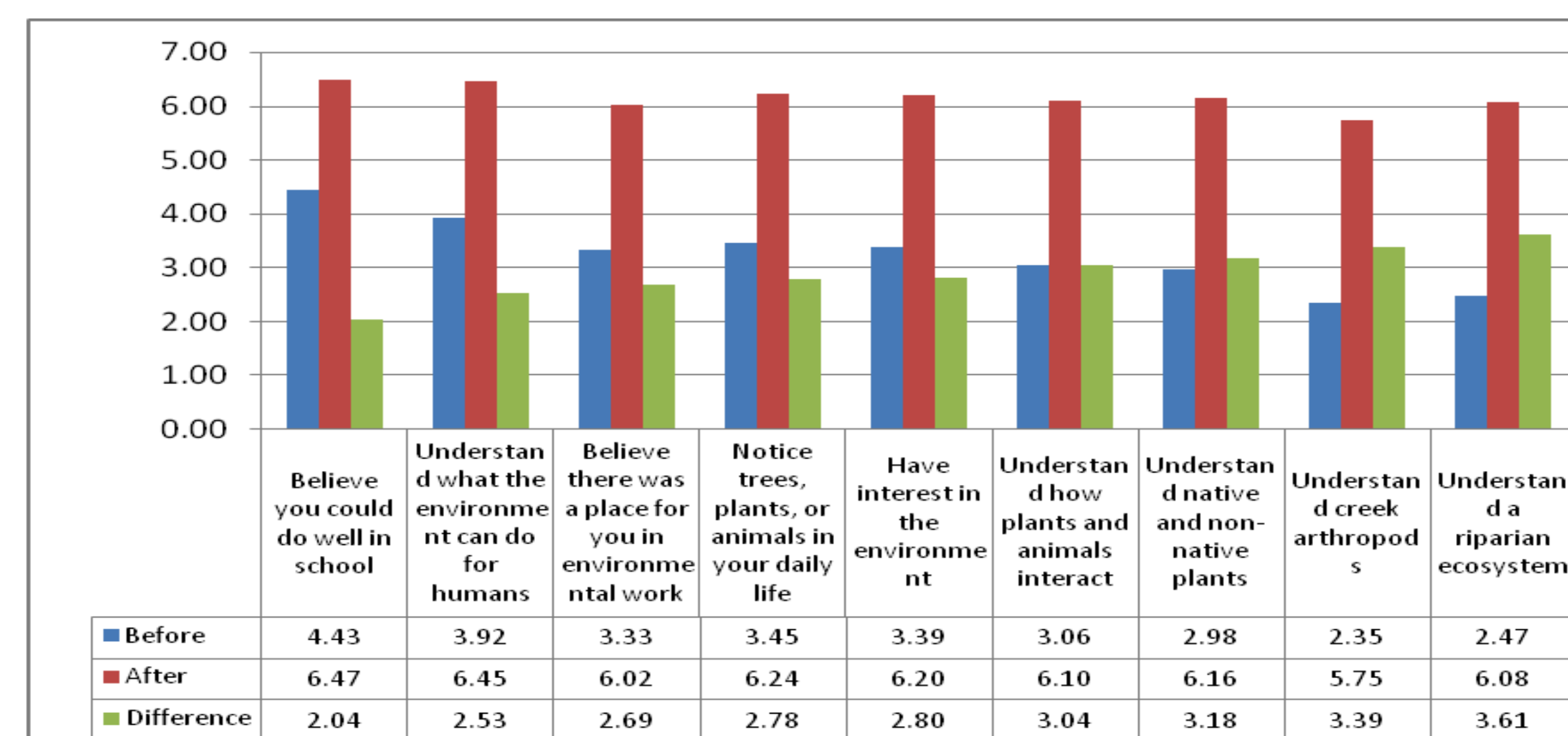
Stanford SEEDS and the Jasper Ridge Biological Preserve have worked together with Redwood High School to implement an experiential ecology education program. The Redwood Environmental Academy of Leadership (REAL) is designed to bring underserved high school students out of the classroom and into the outdoors to create a unique and effective learning experience. Though the program focuses on riparian ecosystem restoration, the course curriculum is interdisciplinary and designed to inspire continuation high school students to attend college or pursue environmental careers. Through a SEEDS special grant, REAL students were taken to Fitzgerald Marine Reserve in Half Moon Bay, California, to learn about marine ecology and intertidal ecosystems at a minus tide. Redwood High School students were joined by their teachers and Stanford faculty and students to study the adaptations of intertidal organisms to their harsh environment.

Results/Conclusions

SEEDS and REAL were able to evaluate the success of the field trip by comparing the students' knowledge of intertidal habitat, the nature of the ocean ecosystems, plants, animals, and reproduction both before and after the trip. This opportunity provides insight into the effectiveness of experiential education for the REAL program and recommendations for future ecology outreach programs.



Question 3: Thinking about your participation before and after the REAL program, how much did you (N=51):



Data courtesy of M. Armstrong, Evaluator: Stanford K-12 Initiative Grant

STUDENT INVOLVEMENT

“Actually seeing what I’m learning and being in the environment helps. My understanding of science has definitely changed. When I was in class learning science, I didn’t understand how it affects me. I feel more connected. Now I want to be an environmental scientist.”

- REAL Participant, 2009



CONCLUSIONS

Experiential education provides a valuable opportunity for students at different levels to learn ecological concepts and influence personal behavior. Program evaluations showed that the REAL program as a whole increased environmental awareness and inspired confidence in participants. Field trips like the rocky intertidal trip were effective at gaining student interest and inspiring the quest for knowledge and understanding.

Partnered hands-on learning experiences like this benefit students at both the high school and university level. Stanford students were able to learn about the rocky intertidal from Jasper Ridge and School of Earth Sciences staff while gaining mentoring and teaching experience from working with younger students.

ACKNOWLEDGEMENTS

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