Evolution Readiness: A Modeling Approach

Evolution Readiness

Fourth-grade students learned Darwin's model of natural selection using computer-based models depicting interacting organisms and their environments. Curricular activities include hands-on labs, multimedia materials and formative assessments.

Evolution Readiness was implemented in schools in Massachusetts, Texas and Missouri from 2008-11.

Paul Horwitz (PI), **Carolyn Staudt** (Co-PI)
The Concord Consortium • **Concord** • **MA 01742**

Laura O'Dwyer (Co-PI)
Boston College • **Chestnut Hill** • **MA 02467**

"For the first time in years, I think my students actually understood variance in the offspring with being able to see how the leaf size changed over time."

	Sample Size	Mean	Standard Deviation	Significance of Difference from Baseline	Effect Size
Year 1 (baseline)	132	531.45	68.40	–	–
Year 2 (treatment)	186	566.14	80.07	p < .001	.46
Year 3 (treatment)	188	555.35	76.78	p < .016	.33

We created an assessment of student content knowledge and administered it to a baseline cohort of fourth grade students who did not use our activities. In the second and third years we administered the same assessment to fourth graders in the same schools and taught largely by the same teachers, using the Evolution Readiness materials. Students who used our curriculum achieved significantly higher scores than those in the baseline group.

Big Ideas

1. Basic Needs of Organisms
2. Life Cycle—Birth and Death
3. Organisms and Their Environment
4. Classification of Organisms
5. Inter-specific Differences
6. Interactions Between Species
7. Intra-specific Differences
8. Adaptation/Evolution
9. Heritability of Traits
10. Reproduction
11. Descent with Modification

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