

NELA Phase One and Two: A Framework for Phase Three

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The NEAL Research Team wishes to express our appreciation to:

- NOAA
- U.S. EPA
- NAAEE
- NAAEE members and other environmental educators who participate in the studies
- Participating schools, administrators, teachers, and students

NELA Phase One a Baseline Study & NELA Phase Two a Comparative Study: What we have learned about levels of Environmental Literacy in the 6th, 7th, & 8th grade (condensed version/NELA Notes)

NELA Phase Three: A secondary analysis of student, school, program, and teacher characteristics

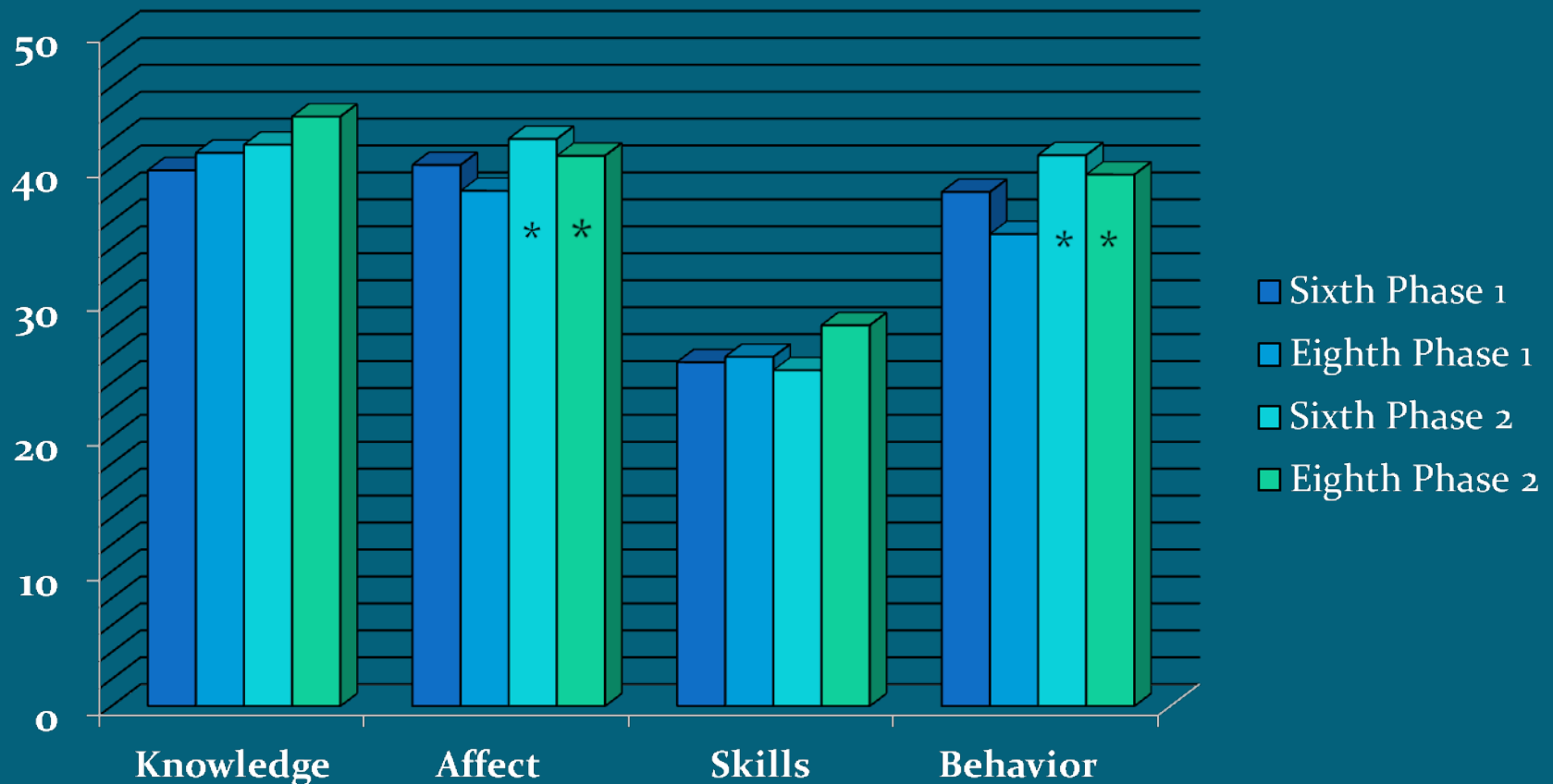
Variables Measured on the MSELS

Eight Literacy Scales Composed Four Literacy Components (Clusters):

- 1) Ecological Knowledge;
- 2) Affect:
 - a. Verbal Commitment [intention to act];
 - b. Environmental Sensitivity;
 - c. General Environmental Feelings [environmental attitudes];
- 3) Cognitive Skills:
 - a. Issue Identification;
 - b. Issue Analysis;
 - c. Action Planning;
- 4) Actual Commitment [environmentally responsible behavior]

Overview of the Samples

	Phase One	Phase Two
Sample Type	Random	Purposeful
States	30	27
Schools	48	64
Sixth Graders	1,042	3,134
Seventh Graders	0	2,693
Eighth Graders	962	2,138
Total Students	2,004	7,965



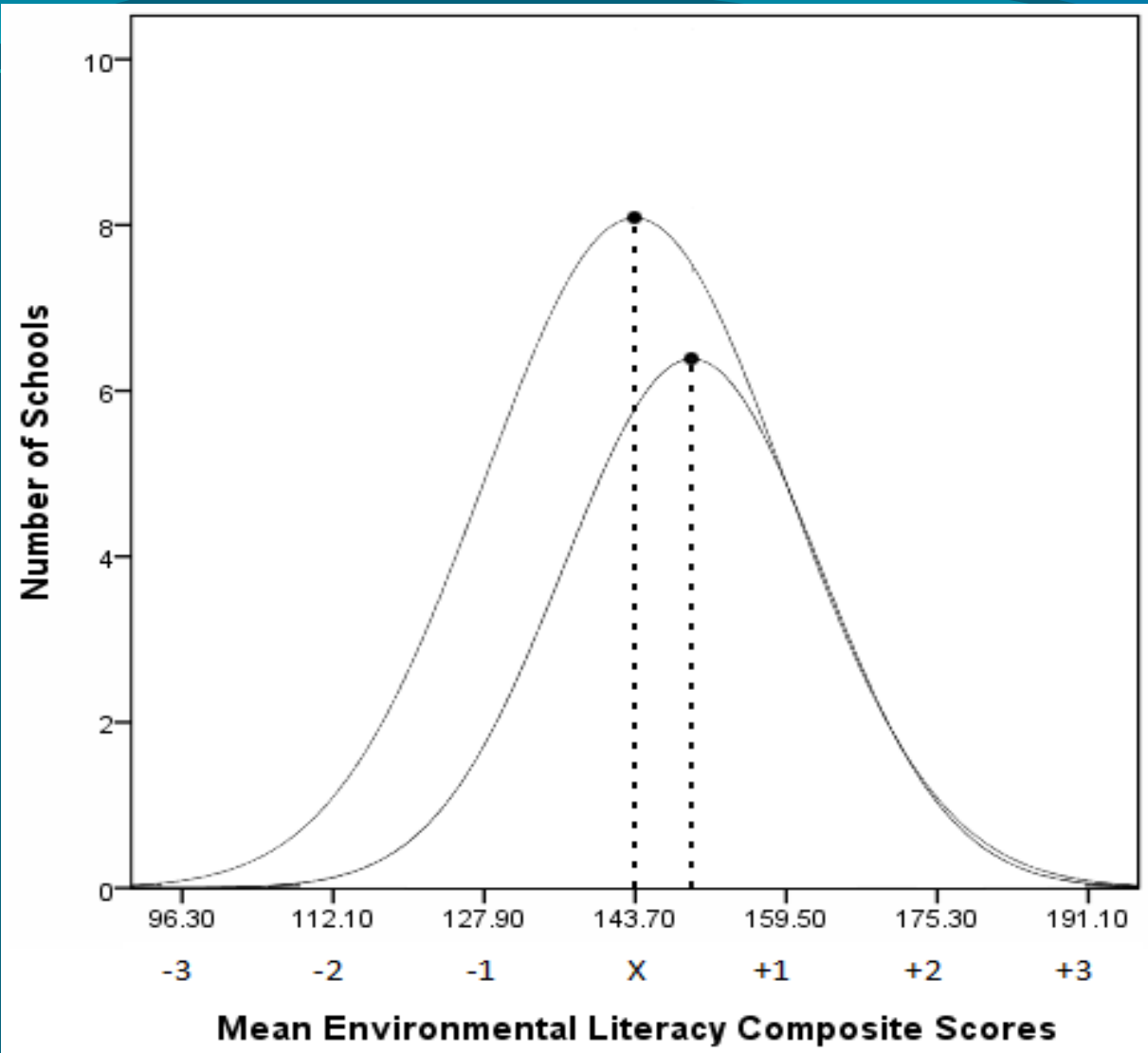
***= significant at .01 level; determined using the Bonferroni method (Cohen, 1988) by dividing the pre-set alpha level ($p \leq .05$) by the number of t-tests run (5) for each grade level.**

Component Adjusted Means and Hypothesized Environmental Literacy Levels

	Ecological Knowledge (low = 0-20; mod = 21-40; high = 41-60)	Environmental Affect (low = 12-27; mod = 28-44; high = 45-60)	Cognitive Skills (low = 0-20; mod = 21-40; high = 41-60)	Behavior (low = 12-27; mod = 28-44; high = 45-60)
Phase One Sixth Grade	39.77 (mod)	40.18 (mod)	25.53 (mod)	38.17 (mod)
Phase Two Sixth Grade	41.68 (high)	42.11* (mod)	24.94 (mod)	40.90* (mod)
Phase Two Seventh Grade	44.11 (high)	41.14 (mod)	26.50 (mod)	39.89 (mod)
Phase One Eighth Grade	41.04 (high)	38.25 (mod)	25.93 (mod)	35.05 (mod)
Phase Two Eighth Grade	43.77 (high)	40.86* (mod)	28.27 (mod)	39.46* (mod)

Mean = 143.65
Std. Dev. = 15.792
N = 48

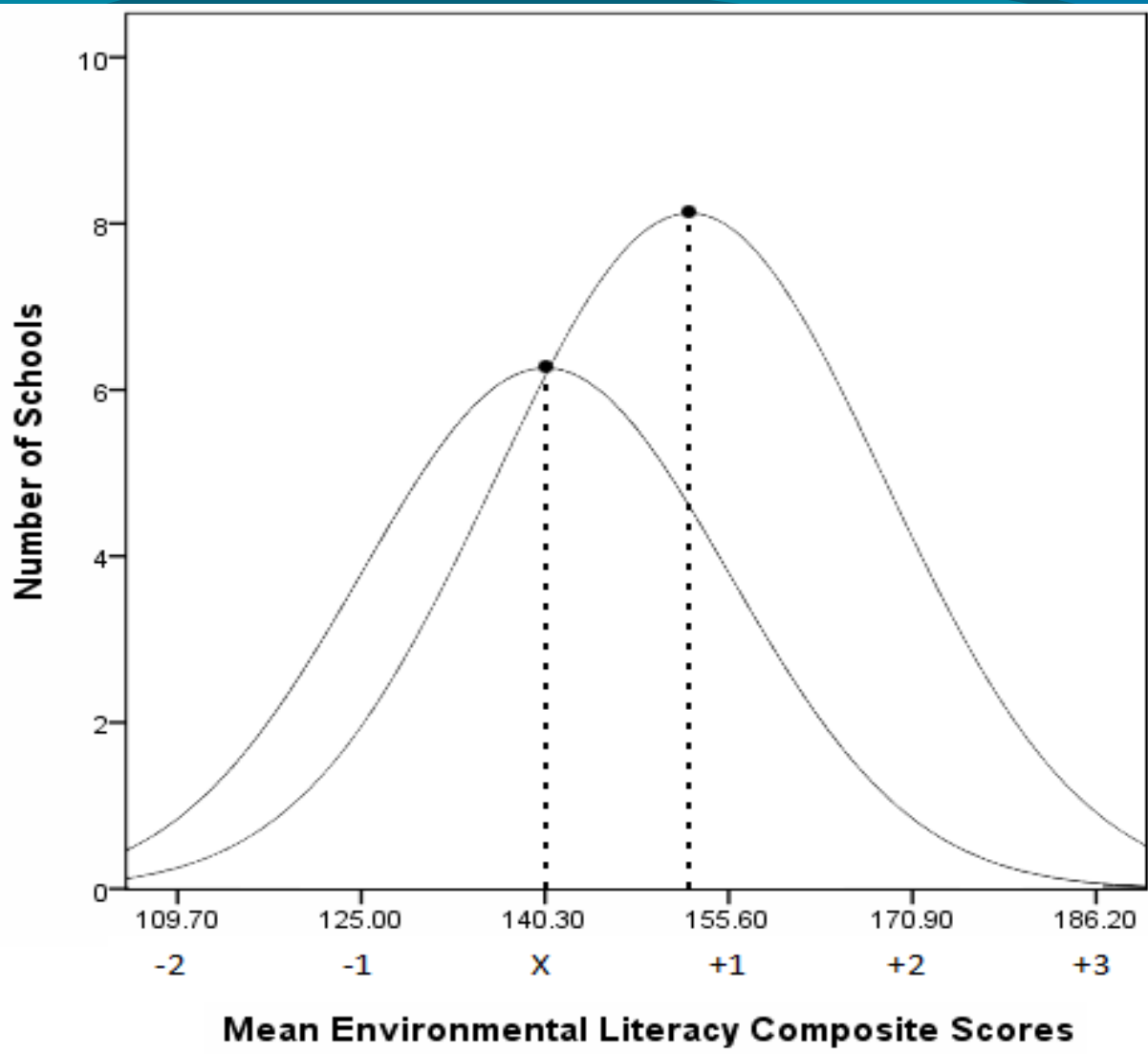
Mean = 149.64
Std. Dev. = 13.435
N = 43



Sixth Grade: Effect Size = +38%

Mean = 140.32
Std. Dev. = 15.286
N = 48

Mean = 152.35
Std. Dev. = 16.204
N = 33



(*) Eighth Grade: Effect Size = + 72%

Findings

- More classrooms and schools in Phase Two scored above the Phase One mean than below.
- As a group sixth- and eighth-grades students in the U.S. are moderate to high in their ecological understandings
- Results from different grade levels within a school were not always consistent.
- As a group Phase Two eighth grade composite scores were significantly higher than those of Phase One

Findings Continued:

- Socioeconomic status and ethnicity appear to differentiate between schools in the top and bottom quartiles (based on the School Information Form).
- Cognitive skills, while hypothesized at moderate levels are at the low end of the this range and can be an area where significant gains are made.
- Schools with on-going school-based environmental programs can and do make a difference across major components of environmental literacy.

Phase Three Data (Variables/Characteristics)

- Student Survey
- School Form
- Program Form
- Teacher Form

Student Survey Samples:

- Age
- Grade
- Gender
- Ethnicity

School Survey Samples

(10):

- Grade Level Configuration (e.g., K-8, 6-8...)
- Enrollment
- Type of school (e.g., Charter, Magnet...)
- Location
- Student/teacher ratio
- Number reduced/free lunch
- School-wide theme (e.g., environmental)

EE Program Survey Samples

(17):

- Grade level involvement in EE
- Nature of EE program
- Years of Program existence by grade level
- Program affiliation with EE network
- Program use of EE curricula
- Classroom teaching methods
- Classroom assessment techniques

Teacher Information Survey

Samples (23):

- Years Teaching
- Certification type
- EE college courses (number and type)
- Gender
- Ethnicity
- Teacher perception of importance of EE to students
- Teacher perceptogn of importance of EE to self
- Teacher sensitivity toward the environmental
- Teacher concern on environmental problems/issues
- Teacher level of environmental action

Survey Questions on Teachers' Self-reported Characteristics

	Not at all/ Slightly	Mod	Considerably/ Extremely
Importance of EE to students			
Phase One Teachers	-	15%	80%
Phase Two Teachers	-	6%	92%
Importance of EE to self			
Phase One Teachers	1%	14%	80%
Phase Two Teachers	-	7%	91%
Sensitivity toward the environmental			
Phase One Teachers	1%	17%	76%
Phase Two Teachers	-	7%	91%
Concern about environmental problems/issues			
Phase One Teachers	1%	12%	82%
Phase Two Teachers	1%	7%	90%

Preliminary results of Regression Analysis: Actual Commitment/Behavior (DV)

	P One 6th	P One 8th	P Two Sixth	P Two Eighth
Eco. Know.	*			*
Verb. Com. (Intent to act)	*	*	*	*
Env. Sen	*	*	*	*
Env. Feeling		*	*	*
Issue Ident.			*	*
Issue Analys.				
Action Plan.				

The NELA Phase 1 Report URL is:

http://www.oesd.noaa.gov/pubs_reports/Final_NELA%20minus%20MSELS_8-12-08.pdf

The NELA Phase 2 Report URL is:

http://www.oesd.noaa.gov/pubs_reports/NELA_Phase_Two_Report_020711.pdf