

Environmental Literacy

In 2012 researchers in the Department of Forestry and Environmental Resources at N.C. State University partnered with members of the N.C. Environmental Literacy Plan working group to study environmental literacy among N.C. middle school students.

Students were assessed on the following environmental literacy components:

KNOWLEDGE

Basic understanding of ecology, energy flow, and nutrient cycles.

AFFECT

Environmental attitudes, environmental sensitivity, and inclination toward pro-environmental behavior.

COGNITIVE SKILLS

Ability to identify and analyze environmental challenges and come up with a plan of action.

BEHAVIOR

Reported pro-environmental behavior such as recycling, conserving water, and community involvement.

Together, these four components were combined to assess **OVERALL environmental literacy.**

NC STATE UNIVERSITY



Factors that were associated with improved environmental literacy

Environmental Education and Outdoor Education:

- Students exposed to published environmental education curricula (ex: Project WET, Project WILD, Project Learning Tree) had higher levels of cognitive skills.
- Students who spent time outdoors at school actively learning had higher levels of knowledge, affect, and behavior.
- Together, these two strategies improve all components of environmental literacy.

Teacher training and experience

- Teachers with Masters degrees had students who showed higher levels of overall environmental literacy, suggesting that investments in teacher training are important to building environmental literacy.
- Teachers with 3-5 years of experience were more effective at building cognitive skills than new teachers, but efforts are needed to better engage veteran teachers.

Student characteristics:

- Boys and girls may have complementary strengths in environmental literacy – knowledge for boys and affect and cognitive skills for girls – allowing educators to leverage these differences to help the whole group learn more effectively.
- Older students did not improve as much as younger students in overall environmental literacy, suggesting early grades are a prime opportunity for impact and older grades may need more attention to maintain engagement.
- African American and Hispanic students were behind Caucasian students in knowledge and cognitive skills, but time outdoors seemed to impact these minority students more than Caucasian students. Time outdoors may help mitigate gaps in environmental literacy associated with ethnicity.

For more information about the N.C. Environmental Literacy Plan go to the Office of Environmental Education and Public Affairs website at: <http://www.eenorthcarolina.org/educators-literacy-plan.html>

For more information on this research, see <http://dx.plos.org/10.1371/journal.pone.0059519>

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