

**The Journal of Blacks in Higher Education** (<http://www.jbhe.com/2013/03/study-finds-that-outdoor-education-can-close-the-racial-gap-in-environmental-literacy/> )

**Study Finds That Outdoor Education Can Close the Racial Gap in Environmental Literacy**

Filed in **Racial Gap**, **Research & Studies** on March 29, 2013



A study by researchers at North Carolina State University in Raleigh found that when middle school students were taken outdoors to learn about environmental science, they were more likely to perform better academically in the subject compared to their white peers than in cases when all students remained in the classroom for instruction.

Kathryn Stevenson, a graduate student at North Carolina State and lead author of the study, stated, “We are interested in whether outdoor experiences can be part of a catch-up strategy that can help in narrowing the environmental literacy gap for minority students.”

“This is one of the first studies on a broad scale to focus on environmental literacy, which is more than mastering facts,” said co-author Nils Peterson, associate professor of fisheries and wildlife in the College of Natural Resources at North Carolina State University. “Being environmentally literate means that students learn cognitive skills so that they can analyze and solve problems, and it involves environmental attitudes and behaviors as well.”

The study, “Environmental, Institutional, and Demographic Predictors of Environmental Literacy among Middle School Children,” was published online at PLOS ONE and is available [here](#).

**Red Orbit** (<http://www.redorbit.com/news/science/1112809810/outdoor-education-helps-minority-students-close-gap-in-environmental-literacy/> )

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Teachers’ level of education played an important role in building environmental literacy. Those with a master’s degree had students with higher levels of overall environmental literacy.

Teachers who had spent three to five years in the classroom were more effective at building students’ cognitive skills than new teachers. Efforts are needed to engage veteran teachers in environmental education, Stevenson said.

In a follow-up to the study, Stevenson is studying coastal North Carolina students’ perceptions of climate change.

Newswise (<http://www.newswise.com/articles/outdoor-education-helps-minority-students-close-gap-in-environmental-literacy> )

CHANS-Net ([http://chans-net.org/news/outdoor\\_ed\\_march2013](http://chans-net.org/news/outdoor_ed_march2013) )

**Outdoor education helps minority students close gap in environmental literacy**



March 25, 2013

Environmental education programs that took middle school students outdoors to learn helped minority students close a gap in environmental literacy, according to coupled human and natural systems research from North Carolina State University.

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**Phys ORG** (<http://phys.org/news/2013-03-outdoor-minority-students-gap-environmental.html> )

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### **KPCC Southern California Public Radio**

(<http://www.scpr.org/blogs/southla/2013/03/25/13043/the-great-outdoors-key-to-boosting-environmental-l/> )

## [Spending time outdoors key to boosting environmental literacy for young minority students, says study](#)

[José Martinez](#) | March 25th, 2013, 4:18pm



*José Martinez/KPCC*

A student participates in a gardening class organized by A Place Called Home, a nonprofit located on Central Avenue in South Los Angeles. The effectiveness of environmental literacy programs may be boosted when they take place outdoors, says a new study.

It's not entirely clear what "environmental literacy" is, but a new study says education programs that take place outdoors can help minority students foster more of it.

Nils Peterson, an associate professor of fisheries, wildlife and conservation biology at North Carolina State University, said the official definition of environmental literacy is "fair game." He co-authored the [PLOS ONE](#) study with an NC State graduate student, Kathryn Stevenson.

"The version we used was a pretty holistic one," he said. "It basically suggested that environmental literacy is a combination of content knowledge, or what you know about ecology; cognitive ability, so the ability to use that knowledge to solve problems; environmental attitudes, so whether you really care about the environment; and environmental behavior."

That last one, said Peterson, has to do with whether content knowledge, cognitive ability and environmental attitude leads people to actually engage in environmentally-friendly actions.

They found that when published environmental curricula was taught outdoors, all four components of environmental literacy improved for the students. That was especially true for black and Latino students.

Peterson said that may be because when it comes to engaging the natural environment, "the groups that get the least of that are going to benefit the most."

Those groups who "get the least of that" – that is, the least exposure to natural settings – often live in densely urban areas, much like South Los Angeles.

"Within those types of environments, schools, particularly public schools, lag behind in general in all areas of education, not just in environmental education," said Peterson.

That's not good, he explained, since there are major benefits in being environmentally literate. That's true on the individual level, said Peterson, since "being able to spend some time in natural environments and understand those environments" contributes to an overall sense of well-being.

But there's also a social benefit that comes with having an environmentally-literate population.

"There are all these huge, environmental issues we're trying to deal with," he said, citing climate change and [fracking](#) as examples. "The list goes on and on and, arguably, if we as a society are going to be able to address some of these issues, we're going to need a public that is able to understand these complex phenomena.

"If we create an environmentally-literate public, we might stand a chance," added Peterson.

South L.A. hardly calls natural spaces to mind, but Peterson said that doesn't mean students who live in the area – or areas like it – can't boost their environmental literacy.

"You don't have to go to a national park to use this curricula," he said, meaning programs like [Project Learning Tree](#) or [Project WILD](#). "You can use a small micro-environment."

Like, say, a [wetlands park](#) or a [local community garden](#).

**Scoop.it!** (<http://www.scoop.it/t/research-sustainability-and-learning/p/3998998859/plos-one-environmental-institutional-and-demographic-predictors-of-environmental-literacy-among-middle-school-children> )

Scooped by [Rebekah Tauritz](#) onto [Research, sustainability and learning](#)

Scoop.it!

**[PLOS ONE: Environmental, Institutional, and Demographic Predictors of Environmental Literacy among Middle School Children](#)**



From [www.plosone.org](http://www.plosone.org) - [March 27, 1:17 PM](#)

Building environmental literacy (EL) in children and adolescents is critical to meeting current and emerging environmental challenges worldwide. Although environmental education (EE) efforts have begun to address this need, empirical research holistically evaluating drivers of EL is critical.

This study begins to fill this gap with an examination of school-wide EE programs among middle schools in North Carolina, including the use of published EE curricula and time outdoors while controlling for teacher education level and experience, student attributes (age, gender, and ethnicity), and school attributes (socio-economic status, student-teacher ratio, and locale). Our sample included an EE group selected from schools with registered school-wide EE programs, and a control group randomly selected from NC middle schools that were not registered as EE schools.

Students were given an EL survey at the beginning and end of the spring 2012 semester. Use of published EE curricula, time outdoors, and having teachers with advanced degrees and mid-level teaching experience (between 3 and 5 years) were positively related with EL whereas minority status (Hispanic and black) was negatively related with EL. Results suggest that school-wide EE programs were not associated with improved EL, but the use of published EE curricula paired with time outdoors represents a strategy that may improve all key components of student EL. Further, investments in teacher development and efforts to maintain enthusiasm for EE among teachers with more than 5 years of experience may help to boost student EL levels. Middle school represents a pivotal time for influencing EL, as improvement was slower among older students. Differences in EL levels based on gender suggest boys and girls may possess complementary skills sets when approaching environmental issues. Our findings suggest ethnicity related disparities in EL levels may be mitigated by time spent in nature, especially among black and Hispanic students.

Citation: Stevenson KT, Peterson MN, Bondell HD, Mertig AG, Moore SE (2013) Environmental, Institutional, and Demographic Predictors of Environmental Literacy among Middle School Children. PLoS ONE 8(3): e59519. doi:10.1371/journal.pone.0059519



Health Medicine Network (<http://healthmedicinet.com/i/outdoor-education-helps-minority-students-close-gap-in-environmental-literacy/> )

NC Office of Environmental Education and Public Affairs  
(<http://www.eenorthcarolina.org/educators--literacy-plan.html>)

EE News Tips is environmental education newsletter of the North Carolina Office of Environmental Education and Public Affairs. (<http://eenewstips.blogspot.com/2013/04/ncsu-researchers-release-environmental.html> )

**Take part (<http://www.takepart.com/article/2013/03/27/how-get-kids-care-take-them-outside> ) No Child Left Inside’—the Solution to Your Child’s Ecological Illiteracy?**

Natural areas needn’t be deep in the wilderness—even urban parks can be used to teach kids valuable eco-lessons.

By [Douglas Main](#)

March 28, 2013

[Comment](#)



Looking to boost your kids' environmental IQ? The first step may be opening the front door and telling them to go play outside. (Photo: Anthony Lee/Getty)

How do you get kids to care about the environment? Take them outside.

It may sound like common sense, but a recent study found that [taking kids to natural areas is incredibly powerful](#) at teaching them—and making them care—about the environment, according to a study published in the journal *PLOS ONE* last week.

Minority students seem to benefit even more than white students from [environmental education classes](#) that involve visiting natural areas. This kind of immersion helps them gain relatively more ecological knowledge and cognitive skills than their counterparts, said Nils Peterson, study co-author and a researcher at North Carolina State University.

"The minority students got more out of outdoor education than others," he said. "It could be a feasible catch-up strategy" for minority students, who tend to lag behind in environmental literacy, he added.

The study didn't try to answer why this might be. However, one intuitive possibility is that since many minority groups simply don't get as much exposure to nature, they get more out of it when they get that chance, since it's new to them, he said.

The study looked at sixth- and eighth-grade students in 34 North Carolina classrooms, 16 of which enrolled students in environmental education programs, and 18 which did not (acting as a control). It found that the "programs really do work" at improving environmental knowledge, attitudes and behavior, said Kathryn Stevenson, a co-author and doctoral student at NC State.

The most effective teachers had between three to five years of experience in the subject, Peterson said. As expected, teachers get better after their first few years. Perhaps surprisingly, however, teachers tended to be less effective after more than five years. Although the researchers don't know why, it could be that teachers begin to run into more conflict with administrators, who often don't encourage environmental classes, or view it as an unnecessary add-on, he said.

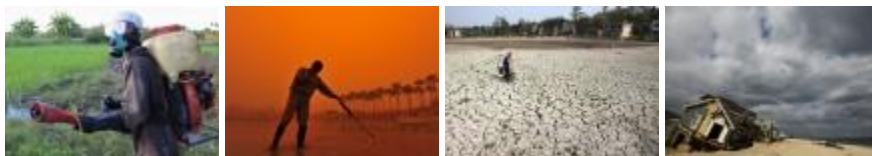
Student age also had a minor impact on how well the classes went. Sixth graders learned faster than eighth graders, according to the study. For that reason, "having initiatives at younger ages is critical," Peterson said.

The kids benefitted just from being outside, regardless of activity. Also, natural areas needn't be deep in the wilderness; even urban parks can be used to teach kids valuable lessons, Peterson added.

The results are encouraging because taking kids outside is relatively simple and needn't be overly costly, especially since natural areas aren't necessarily far afield.

Environmental literacy is made up of four factors: factual knowledge and understanding of natural processes, attitudes about the environment, cognitive and analytical skills, and behavior. All areas must be developed for a person to be "environmentally literate"; caring about climate change doesn't necessarily lead a person to change their behavior, Stevenson said. She spent two years as an outdoor educator, four years as a high school biology teacher, and is now trying to figure out what makes people care about the environment.

#### Related Gallery



[Earth: Your Fragile Planet \(PHOTOS\)—October 2012 to March 2013](#)[See Full Gallery](#)

There are many environmental education programs, which were generally found to be affective, with names like [Project Learning Tree](#), [Project WET](#) and [Project WILD](#). Most states have environmental education programs, and interested teachers can find more information from their state's website.

There is currently legislation pending before Congress (called "No Child Left Inside") which would provide some funding for environmental education classes throughout the country, Stevenson said. She and her colleagues hope that it may pass once Congress gets around to considering it, although it's unclear when that might be.

Peterson is cautiously optimistic about the state of environmental education, which he sees being embraced and taught by more teachers nationwide, but slowly. "It's very underfunded and under-supported," he said. "I think it's growing and getting more attention, but it's doing so against the odds."

CNR News (<http://cnr.ncsu.edu/blogs/news/2013/03/25/outdoor-education-helps-minority-students-close-gap-in-environmental-literacy/> )

## Outdoor Education Helps Minority Students Close Gap in Environmental Literacy

2013 March 25

tags: [cnr](#), [diversity](#), [extension](#), [fer](#), [fwcb](#), [ncstate](#), [research](#)

by CNR Communications

Environmental education programs that took middle school students outdoors to learn helped minority students close a gap in environmental literacy, according to research from North Carolina State University.



Students at Centennial Middle School in Raleigh, NC learn about tree measurement

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The statewide study also measured environmental attitudes and pro-environmental behavior such as recycling and conserving water. “We are interested in whether outdoor experiences can be part of a catch-up strategy that can help in narrowing the environmental literacy gap for minority students,” said lead author **Kathryn Stevenson**, an NC State graduate student who has taught outdoor education classes in California and high school biology and science in North Carolina. Researchers tested the environmental literacy of sixth- and eighth-grade students in 18 North Carolina schools in the fall and spring. Half of the schools studied had registered an environmental education program with the state. Using a published environmental curriculum, such as [Project Learning Tree](#), [Project WET](#) or [Project WILD](#), helped build students’ cognitive skills, researchers found. Learning in an outdoor environment improved students’ ecological knowledge, environmental attitudes and behavior.

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In a follow-up to the study, Stevenson is studying coastal North Carolina students’ perceptions of climate change.

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**Resources:** [Environmental Literacy Fact Sheet](#)

**Note:** An abstract of the paper follows.

“Environmental, Institutional, and Demographic Predictors of Environmental Literacy among Middle School Children”

Authors: Kathryn T. Stevenson, M. Nils Peterson, Howard D. Bondell, Angela G. Mertig and Susan E. Moore

Published: March 22, 2013, in PLOS ONE

**Abstract:** Building environmental literacy (EL) in children and adolescents is critical to meeting current and emerging environmental challenges worldwide. Although environmental education (EE) efforts have begun to address this need, empirical research holistically evaluating drivers of EL is critical. This study begins to fill this gap with an examination of school-wide EE programs among middle schools in North Carolina, including the use of published EE curricula and time outdoors while controlling for teacher education level and experience, student attributes (age, gender, and ethnicity), and school attributes (socio-economic status, student-teacher ratio, and locale). Our sample included an EE group selected from schools with registered school-wide EE programs, and a control group randomly selected from NC middle schools that were not registered as EE schools. Students were given an EL survey at the beginning and end of the spring 2012 semester. Use of published EE curricula, time outdoors, and having teachers with advanced degrees and mid-level teaching experience (between 3 and 5 years) were positively related with EL whereas minority status (Hispanic and black) was negatively related with EL. Results suggest that school-wide EE programs were not associated with improved EL, but the use of published EE curricula paired with time outdoors represents a strategy that may improve all key components of student EL. Further, investments in teacher development and efforts to maintain enthusiasm for EE among teachers with more than 5 years of experience may help to boost student EL levels. Middle school represents a pivotal time for influencing EL, as improvement was slower among older students. Differences in EL levels based on gender suggest boys and girls may possess complementary skills sets when approaching environmental issues. Our findings suggest ethnicity related disparities in EL levels may be mitigated by time spent in nature, especially among black and Hispanic students.