

Scientific risk-taking by young students fades with age (w/ Video)

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Ronald Beghetto, professor of education studies at the University of Oregon, finds that the willingness to take risks with their scientific ideas fades with with age. Credit: Photo by Jim Barlow

A truth in science is that a theory may fail or succeed initially and be shot down later. Now put yourself in the shoes of elementary school students faced with stating an idea and then facing potential criticism, even ridicule, of others.

A study on student willingness to take risks in the name of early scientific exploration -- done by the University of Oregon educator Ronald A. Beghetto -- is one of 10 research articles appearing on the suggested summer reading list of the National Association for Research in Science Teaching.

The study, published in the February 2009 issue of the *Journal of Research in Science Teaching*, looked at intellectual risk-taking of 585 [students](#) in the third- through sixth-grades in seven Oregon elementary schools. Fifty-one percent were girls. Ethnically, 76 percent (442) were white, 9 percent (55) were Native American, 7 percent (40) were Hispanic, 2 percent (14) were Asian/Pacific Islander and .5 percent (3) were black. The remaining 5 percent (31) were in the "other" category.

The students in Beghetto's study were drawn from a large group of elementary-aged schoolchildren who were receiving marine science instruction from teachers working with UO graduate students in the National Science Foundation-funded Graduate Teaching Fellows in K-12 Education Program, led by biologists Alan Shanks and Jan Hodder, at the UO's Institute of [Marine Biology](#) in Charleston, Ore.

Beghetto, a professor of education studies, found that, in general, as students get older they become less likely to take intellectual risks, such as sharing their tentative ideas, when learning science. Importantly, however, students who were interested in science had confidence in their own ideas, and felt that their teachers supported them -- by listening to their ideas and providing encouraging feedback. These children were significantly more willing to take intellectual risks when learning science.

In fact, he said, the findings indicate that science interest, confidence in their own ideas and perceived teacher support were more important than even science ability in predicting students' reports of intellectual risk taking.

The study drew upon self-reporting of participating students and teachers' ratings of the students' science abilities. While relying on student self-reports was noted as a limiting factor because some students' reports may be biased through false reporting, Beghetto says he believes

the potential importance of these findings warrants serious attention by teachers.

"Science teachers in elementary schools have a great opportunity and a responsibility to encourage their students' interest in science and their willingness to take risks in pursuing scientific inquiry," said Beghetto, who currently serves as an associate editor for the International Journal of Creativity & Problem Solving. "Their front-line efforts to spark and sustain curiosity likely will pay off in the form of increasing students' willingness to engage in intellectual risk-taking."

The findings, he added, provide a roadmap for more comprehensive future studies aimed at understanding and finding ways to encourage elementary students' intellectual risk-taking when learning about science.

Provided by University of Oregon

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