In this issue

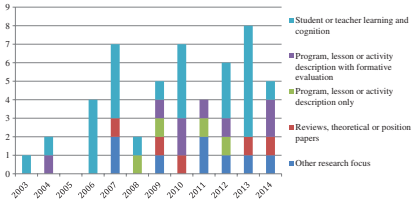
Lynn A. Bryan, Alejandra J. Magana and David Sederberg

Published research on pre-college students' and teachers' nanoscale science, engineering, and technology learning

DOI 10.1515/ntrev-2014-0029
Nanotechnol Rev 2015; 4(1): 7–32

Review: This study identifies published empirical research studies that report precollege student and teacher NSET learning data and analysis and synthesizes the findings to determine the current state of research on pre-college NSET learning.

Keywords: nanoscale science, engineering, and technology (NSET) education; pre-college student learning; pre-college teacher learning.



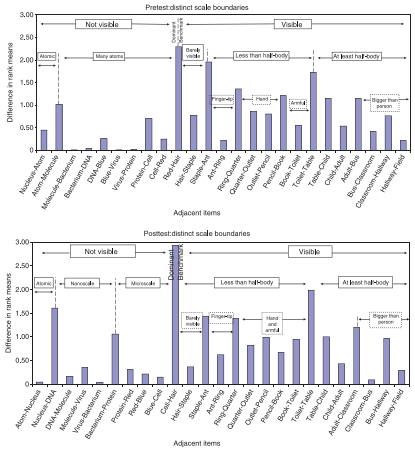
Thomas R. Tretter

Instructional impact on high school physics students' nanoscience conceptions

DOI 10.1515/ntrev-2014-0015
Nanotechnol Rev 2015; 4(1): 33–50

Nanotechnology education: A weeklong nanoscience instructional unit for high school physics students shifted their conceptions to become similar to those of graduate students in the sciences.

Keywords: big ideas in nanoscience; conceptions of nanoscale; conceptions of nanoscale instrument (CNI); conceptions of spatial scale; high school nanoscience instruction.



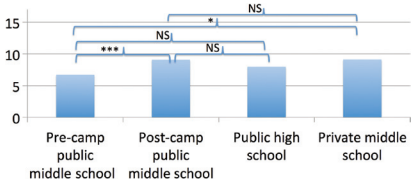
Cesar Delgado, Shawn Y. Stevens, Namsoo Shin and Joseph Krajcik

A middle school instructional unit for size and scale contextualized in nanotechnology

DOI 10.1515/ntrev-2014-0023
Nanotechnol Rev 2015; 4(1): 51–69

Nanotechnology education: A 12-h instructional unit experienced by 24 low SES public middle school students led to a statistically significant increase in their knowledge of size and scale, closing a significant gap with mid-high SES private middle school students and achieving levels of knowledge descriptively larger than high school students in the same district.

Keywords: curriculum; nanoeducation; scale.



Shu-Fen Lin, Jun-Yi Chen, Kun-Yi Shih, Kuo-Hua Wang and Huey-Por Chang
Science teachers' perceptions of nanotechnology teaching and professional development: a survey study in Taiwan

DOI 10.1515/ntrev-2014-0019
Nanotechnol Rev 2015; 4(1): 71–80

Nanotechnology education: The study examines Taiwanese secondary school science teachers' understanding of nanotechnology teaching after implementing the National Program of Nanotechnology (NPNT), as well as the teachers' perceptions of school support and their professional development intentions.

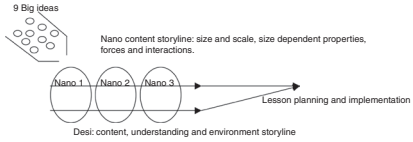
Keywords: nanotechnology teaching; professional development; TPNTS.

Douglas Huffman, John Ristvey, Anne Tweed and Elisabeth Palmer
Integrating nanoscience and technology in the high school science classroom

DOI 10.1515/ntrev-2014-0020
Nanotechnol Rev 2015; 4(1): 81–102

Nanotechnology education: An overview of NanoTeach field test timeline.

Keywords: curriculum; nanoscience; science education; teaching.



M. Gail Jones, Grant E. Gardner, Michael Falvo and Amy Taylor
Precollege nanotechnology education: a different kind of thinking

DOI 10.1515/ntrev-2014-0014
Nanotechnol Rev 2015; 4(1): 117–127

Nanotechnology education: Instructional methods used in precollege nanotechnology education and the levels at which different nanoscale topics are introduced are presented and critiqued.

Keywords: education; instruction; nanotechnology; scale; size.