

## The Effect of Nanoscience and Nanotechnology Education on Preservice Science Teachers' Awareness of Nanoscience and Nanotechnology

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**Abstract :** With current trends in nanoscience and nanotechnology (NST), scientists have paid much attention to education and nanoliteracy in parallel with the developments on these fields. To understand the advances in NST research requires a population with a high degree of science literacy. All citizens should soon need nanoliteracy in order to navigate some of the important science-based issues faced to their everyday lives. While the fields of NST are advancing rapidly and raising their societal significance, general public's awareness of these fields has remained at a low level. Moreover, students enrolled different education levels and teachers don't have awareness at expected level. This problem may be stemmed from inadequate education and training. To remove the inadequacy, teachers have greatest duties and responsibilities. Especially science teachers at all levels need to be made aware of these developments and adequately prepared so that they are able to teach about these advances in a developmentally appropriate manner. If the teachers develop understanding and awareness of NST, they can also discuss the topic with their students. Therefore, the awareness and conceptual understandings of both the teachers who will teach science to students and the students who will be introduced about NST should be increased, and the necessary training should be provided. The aim of this study was to examine the effect of NST education on preservice science teachers' awareness of NST. The study was designed in one group pre-test post-test quasi-experimental pattern. The study was conducted with 32 preservice science teachers attending the Elementary Science Education Program at a large Turkish university in central Anatolia. NST education was given during five weeks as two hours per week. Nanoscience and Nanotechnology Awareness Questionnaire was used as data collected tool and was implemented for pre-test and post-test. The collected data were analyzed using Statistical package for the Social Science (SPSS). The results of data analysis showed that there was a significant difference ( $z=6.25$ ,  $p < .05$ ) on NST awareness of preservice science teachers after implemented NST education. The results of the study indicate that NST education has an important effect for improving awareness of preservice science teachers on NST.

**Keywords :** awareness level, nanoliteracy, nanoscience and nanotechnology education, preservice science teachers

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