Contribution ID: **353** Type: **Oral Presentation**

Correlation between first year physics students' understanding of the nature of science (NOS) and their academic performance

Wednesday, 11 July 2012 16:30 (20 minutes)

Abstract content
   (Max 300 words)

The research on teachers' and students' conception of NOS conducted since 1950 indicates that different student populations in different contexts have naïve understanding of NOS. This study seeks to examine how the change in first year Physics students' NOS conceptions correlates with their academic performance at university level.

The NOS and scientific inquiry are regarded as essential components of scientific literacy. This study will focus on five features of NOS considered as Benchmarks for Science Literacy and the National Science Education standards. They include understanding that scientific knowledge is: tentative (subject to change); empirically based (based on and/or derived from observations of the natural world); subjective (influenced by scientists' background, experiences, and biases); partly the product of human imagination and creativity (involves the invention of explanations); and socially and culturally embedded (the distinctions between observations and inferences, and the functions of, and relationships between, scientific theories and laws).

This talk will focus on the results of a preliminary study in which the academic performance of volunteer Physics students is compared to their score on the Force Concept Inventory (FCI) test and the Views on Nature of Science Questionnaire (VNOSQ) coupled with modified questions from Views on Science-Technology-Society (VOSTS) questionnaire.

A future study will focus on the effect of practical experiments on a students' understanding of the NOS. The details of this experiment will be expanded on in the talk.

Apply to be
 consider for a student
   award (Yes / No)?

yes

Level for award
 (Hons, MSc,
   PhD)?

PhD

Main supervisor (name and email)
and his / her institution

Dr Walter Meyer; walter.meyer@up.ac.za; University of Pretoria

Would you like to <br> submit a short paper <br> for the Conference
 Proceedings (Yes / No)?

yes

Primary author: Mr BALOYI, Vonani (University of Pretoria)

Co-authors: Prof. BRAUN, Max W.H. (University of Pretoria); Dr MEYER, Walter E (University of Pretoria)

Presenter: Mr BALOYI, Vonani (University of Pretoria)

Session Classification: Education

Track Classification: Track E - Physics Education