

NEW ZEALAND ASSOCIATION FOR RESEARCH IN EDUCATION

TE HUNGA RANGAHAU MĀTAURANGA O AOTEAROA

Rae Munro Award 2007

Thesis title-

Myth busting and tenet building: Primary and early childhood teachers' understandings of the nature of science

Rena Heap, The University of Auckland

The recipient of the 2007 Rae Munro Award, for an excellent master's thesis with implications for New Zealand teacher education or classroom practice, is Rena Heap from the University of Auckland. Rena's thesis is titled *Myth busting and tenet building: Primary and early childhood teachers' understandings of the nature of science*. Rena's research has direct implications for teacher education and classroom practice

The fundamental objective of science education is to provide students with a level of scientific literacy necessary to participate in a society increasingly dependent on science and technology. Central to this understanding is an appreciation of the nature of science (NOS). Inclusion of the NOS as one of the strands for the new science curriculum is in response to recognition of the need for this understanding.

Rena's critical social science research identified understandings of NOS from a cohort of practising primary and early childhood teachers enrolled in a semester long science course as part of a Bachelor of Education degree and mapped these understandings over the duration of the course in order to identify shifts in understanding and aspects of NOS resistant to change.

The findings of this thesis have implications for teacher education for the following reasons:

- There is a complex relationship between a science teacher's conception of NOS and their practice. The NOS understandings of this group of teachers corresponded to those documented in previous studies in that they were fragmented, lacking in depth, inconsistent, fluid and revealed many myths of NOS.
- The literature identifies the difficulties in bringing about conceptual change in NOS understandings and this meticulously researched project has identified factors that convincingly changed these teachers' understandings of NOS. these findings show that the use of content embedded and NOS content-free tasks could serve as a model for teachers to teach this aspect of the New Zealand science curriculum.

This thesis has provided the educational research community with an evaluation of the tools used to identify initial understandings and shifts in understandings of NOS. Within this complex research design, this data was meticulously monitored using such data collection tools as opened-ended questions, VOSTS questionnaire and structured reflective journal writing using prompts. The data was extensively analysed using two frameworks (myths and NOS) that have been adapted for this research. This evaluation has provided researchers with a range of tools to monitor changes in understanding, which will be of interest both nationally and internationally.

This thesis is immaculately presented and elegantly written. The strength of this thesis is that although the analysis was complex, the researcher never loses her voice when telling this complex story. This thesis will make a significant contribution to science education both within New Zealand and internationally.

It is with pleasure that the New Zealand Association for Research in Education confers on Rena Heap its 2007 Rae Munro Award.



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