Phinitnan Neangjakoun 2010: Developing Primary Science Teachers for Teaching "Astronomy and Space" Integrated with "Nature of Science and Technology". Master of Arts in Teaching, Major Field: Teaching Science, Department of Education.
Thesis Advisor: Mr. Chatree Faikhamta, Ph.D. 176 pages.

The objectives of this study were to study 1) current practice, problems and needs of primary science teachers about teaching astronomy and nature of science, 2) guidelines for developing science teaching practice, 3) participating science teachers' conceptions of nature of science (NOS) before and after the workshop 4) participating science teachers' teaching practice after the workshop. The study is divided into two phases. The first phase was a survey research conducted in the first semester of the 2008 academic year which aimed to study primary science teachers' current practice, problems and needs in teaching astronomy and NOS. There were 162 science teachers from the schools in Nonthaburi province who responded to the questionnaire which consisted of a five-level rating scale and open-ended questions. The quantitative data were analyzed by counting frequencies and calculating for percentages, while the qualitative data were analyzed by coding and categorization. The second phase was a case study which aimed to study three participating science teachers' development of understanding of NOS and their teachings. The research instruments were a NOS questionnaire, field notes, and interview-after-teaching protocols. The data were analyzed by content analysis.

The results indicated that: 1) the majority of the science teachers expressed a high level of current practice and needs in teaching by emphasizing student hands-on. Most of them expressed a moderate level of needs in learning management, material and resources, and assessment. The three most urgent problems for teaching astronomy and NOS were learning materials, content understanding and teaching strategies. 2) Science teacher professional development should start from teachers' needs. The activities used in training should encourage teachers' direct experience and reflection based upon their own teaching strategies. 3) Before the workshop, most of the teachers had misconceptions about NOS in particular to the confusion between theories and laws, and the scientific models expressing a copy of reality. After the workshop, most of the teachers had better understanding of NOS in all aspects. 4) The teachers participated the workshop could teach astronomy integrating NOS. They implemented what they had learned from the workshop in their teaching by emphasizing inquiry and explicit-reflective approach in teaching astronomy and NOS.

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