Aeumporn Prasatsoong 2014: The Development of the Ability to Teach Nature of Science Using Explicit-Reflective Approach to Enhance High School Student' Understanding of Nature of Science in Heredity Learning Unit. Master of Education (Science Education), Major Field: Science Education, Department of Education. Thesis Advisor: Assistant Professor Prongprapan Pongsophon, Ph.D. 135 pages.

This project is an action research aiming to 1) reflect, analyze, and synthesize a good practice of integrating nature of science (NOS) in Genetics Learning Unit using explicit reflective approach and 2) examine the effect of this approach on Grade 10 students' understanding of NOS (N = 35). The study took place at two classrooms in a school located Khon Khen province. Adopting Lederman's framework of NOS (2002) and his instrument, VNOS-C, the students' understanding were measured and cross-checked with the data from various other sources; teachers' note, and student journals. The students' responses to VNOS-C were categorized according to the degree of congruence with the consensus view. The frequencies and percentages of each category before and after the instruction were compared. The ordinal data were also transformed to continuous one, so the mean scores can be figured out and compared. Data regarding the good practice were analyzed using inductive method, so general pattern of effective teaching could be drawn from critical reflections from repeated cycles of action research.

For a good practice of explicit-reflective approach, the teacher should use daily life situation, the biography of prominent scientists in the past and historical events as agents from which the students can make a connection, discuss and draw a conclusion on the target NOS tenet. It also found that the students developed understanding of all tenets of NOS after instruction with the tenets of Creativity and Imagination and Empirical Evidence having highest average scores. The difference between Scientific Law and Theories, however, was found to be a difficult NOS tenet to teach and learn.

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