Lalita Manyanont 2014: The Development of Grade 9 Students' Understanding of Nature of Science and Conceptions of Electricity by Explicit Approach. Master of Education (Science Education), Major Field: Science Education, Department of Education. Thesis Advisor: Assistant Professor Pongprapan Pongsopon, Ph.D. 253 pages.

The aim of this action research was to study the effects of Explicit Approach on grade 9 students' conceptions in Electricity Unit and the understanding of NOS and study a good practice of Explicit Approach. The participants were a classroom of 43 students from a large-sized private school in Samutprakarn. The research tools consisted of teacher reflective journals, student reflective journals, Electricity Concept Test and View of Nature of Science Questionnaire. To analyze student conceptions, the posttest scores were compared with 60% criteria. Relative gain scores were also calculated to determine the extent of change in their ideas. Student's written responses in respect to NOS were categorized and transformed into scores so mean and relative gain scores could be calculated. To synthesize the best practice, the critical points and patterns in student reflective journal and teacher reflective journals data were discerned using inductive analysis.

The results showed that Explicit Approach can improve all concepts of Electricity, All students have developed conceptual understanding; most in moderate level (34.88%). The student's understanding of NOS was also improved in all aspects especially empirical basis tentativeness and creativity. The average posttest score exceeded the cutting critical (62.77%) All students had the development in their understanding of NOS, most at moderate level (44.18%). A good practice of Explicit Approach in teaching the unit of Electricity in terms of effectiveness and efficiency can be characterized as follows. The learning process should have various teaching materials and inquiry-based activities in order to effectively reflect the aspects of NOS. In each activity, there should not have too many aspects of NOS. Moreover, historical case studies should be also included.

Student's signature

Thesis Advisor's signature

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