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REFLECTIONS ON DIDAKTIK ANALYSIS OF PHYSICS TEACHING METHODS

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It is about a decade the researcher started introducing didaktik tradition in his undergraduate course, the physics teaching methods. Prior to didaktik tradition, physics teaching methods at the Faculty of Education equipped pre-service teachers with pedagogical strategies which is commonly focus on understanding learning. Here, the specific content is not treated as problematic in the teaching and learning of physics as physics courses are taught by the Faculty of Science. As the meaning of didaktik is based on the notion of Bildung (the formation of the learner on his or her development), and it concerns the process of transforming and developing the physics content structure from the contexts primary source of scientific knowledge into the contexts of schooling knowledge and subsequently enhancing the practice of teaching and learning in the classroom, thus the researcher employs one conception of Didaktik that is didaktik analysis. Didaktik analysis in physics teaching methods involves with: conceptual analysis of specific physics content as contained in the curriculum specifications and textbooks; analysis of literature on students' alternative conceptions; developing a lesson plan; developing teaching sequences that involve teaching and learning activities, and reflection. Since then, the researcher begins to reflect more thoughtfully on his actions at the end of conducting physics teaching methods course, during pre-service physics teachers' teaching practices in the microteaching (seven weeks) and their practicum (14 weeks) in secondary schools, and during presenting papers at the national and international conferences. The researcher engages in 'technical reflection', where the focus is on the physics teaching methods course and teaching practice issues in the microteaching and practicum, and in 'practical reflection', where the focus is on didaktik analysis issues. The researcher finds that although pre-service physics teachers did their didaktik analysis assignment on mechanics, energy, optics, electricity and electromagnetism, and implemented these in their lesson plans and teaching sequence in the micro-teaching. Their lesson plans did consist of 'learning outcomes', a teaching sequence, assessment procedures, and reflections. However, during practicum their lesson plans developed were not strongly based on didaktik analysis, but were more in accord with the textbooks and curriculum specifications. Pre-service physics teachers seem bound by the physics content contained in the curriculum specifications, and subsequently this impacted on their lesson plans and teaching sequence in the classroom during their teaching practice in secondary schools. It would seem then that having experiences with didaktik analysis assignments and teaching practice, are not enough alone to ensure that pre-service physics teachers will actually use didaktik analysis-based teaching practice in their future teaching. In addition, comments or feedbacks from the participants during the conferences about didaktik tradition said that didaktik and pedagogy are almost similar and the terms are commonly used in teacher training programmes. Generally, the researcher finds that educational contexts have influenced on pre-service physics teachers in their teaching practice on didaktik analysis in the classroom as didaktik is strongly culture-bound.

Keywords: didaktik tradition, pedagogy, didaktik analysis, teaching methods, teaching sequence, technical reflection, practical reflection.

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