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Integrated science competence using inquiry approach of science education undergraduate student

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Abstract

The objective of this research was to obtain description about competence of science education undergraduate students as candidate of junior high school science teacher, which include content competence and pedagogy competence on integrated science using inquiry approach. Content competence includes understanding on integrated science with scientific method and on science field interdisciplinary. Pedagogy competence includes capability of student to plan, develop and do integrated science learning using inquiry approach. It was descriptive research with subject of 30 semester-6 a science education undergraduate students. Data were obtained using integrated science I test instrument (integrated of science and scientific method) and integrated science II test instrument (understanding of science interdisciplinary concept); competence map development assesment instrument and integrated science learning syllabus; lesson plan assessment instrument and peer teaching instrument. Result of content competence indicated that there was an increase in science integrated competence with scientific method on the subjects with early and final test average score of 72,4 and 91.3, respectively, with N-gain 0.68. There was olso an increase in science interdisciplinary understanding competence for objective questions with average score for early and final test were 60,3 and 86,8, respectively, with N-gain 0.67. There was increase in science interdisciplinary understanding competence for subjective questions with average score for early test and final test were 33,0 and 72,2, respectively, with N-gain 0.59. Student'pedagogy competence in planning integrated science learning is good, indicated with average score of capability of developing competence map and syllabus of 3.3 (score range 1-4) and student competence in lesson plan development is good, indicated with average score of 3.2 (score range of 1-4). Student competence in doing and managing learning is good, with peer teaching assessment of 3.7 (score range of 1-5).

Key words: content competence, pedagogy comptetence, integrated science, inquiry

Background

In Standards for Science Teacher Preparation (NSTA, 2003: 8), it is recommended for science teachers that science teachers tend to be interdisciplinary. As the effort to fulfill such a need, then science teachers of elementary and high school should be prepared for having competences in terms of biology, chemistry, globe, interplanetary space and other sciences.

The study program of science Education in the faculty of MIPA UNY is aimed to produce teachers with a title named Sarjana Pendidikan Sains (S.Pd.Si.) who have basic competences of pedagogy, personality, professional and social.

Education competence of science. It is not only a competence to make researches to develop science education but also a competence to spread science education through education and training program. Competence to face the future. It is a competence to face and figure out the tendency of science education and use such a competence to improve science education.

Competence science bases and the adequate variants to advanced study. (2002 curriculum, Faculty of MIPA State University of Yogyakarta (UNY), 2007: 58-59)

The curriculum centre, Balitbang Depdiknas has arranged the guidance of developing integrated science learning since 2005, but in reality almost all junior high school science teachers have not applied that learning by any reasons. From the