

ABSTRAK

Maju mundurnya suatu bangsa dapat dicirikan oleh tiga aspek, yaitu: literasi sains, bahasa dan matematika. Fenomena rendahnya literasi sains anak Indonesia pada ketiga jenis literasi menunjukkan masih perlunya dunia pendidikan untuk berbenah diri. LPTK, khususnya Fakultas Tarbiyah dan Ilmu Keguruan (FITK) dan sekolah menjadi ujung tombak perjuangan untuk senantiasa melakukan perubahan, inovasi dan reformasi dalam cara membelajarkan dan melatih peserta didik agar dapat menghadapi tantangan abad 21. Penelitian ini bertujuan untuk mengembangkan model *problem based learning* terintegrasi *science, technology, engineering, and mathematics* (STEM) berbasis nanoteknologi serta mengetahui pengaruhnya terhadap peningkatan literasi sains mahasiswa. Metode penelitian yang digunakan adalah metode penelitian dan pengembangan (R&D) yang meliputi tahapan *define, design, and develop* dengan sampel mahasiswa Pendidikan Kimia FITK UIN Syarif Hidayatullah Semester 4 Tahun Akademik 2016/2017. Instrumen yang digunakan dalam penelitian ini terdiri dari tes esai, angket, lembar observasi, dan lembar validasi. Data yang diperoleh dianalisis dengan teknik deskriptif kuantitatif. Hasil penelitian adalah (1) nilai rata-rata N-Gain (%) hasil belajar mahasiswa sebesar 45,6 % (kategori sedang), (2) Besarnya nilai rata-rata N-Gain (%) pada masing-masing aspek literasi sains secara berurutan antara lain: pada aspek konteks aplikasi sains sebesar sebesar 51,5 (kategori sedang); pada aspek konten sains, sebesar 39,1 (kategori sedang); begitu juga pada aspek proses sains sebesar 38,6 (kategori sedang).

Kata Kunci: *Problem Based Learning; Science, Technology, Engineering, and Mathematics* (STEM); Nanoteknologi, Literasi Sains; R&D.

ABSTRACT

The advancement of a nation can be characterized by three aspects: literacy of science, language and mathematics. The phenomenon of the low literacy of Indonesian children's science on the three types of literacy indicates the need for education to improve themselves. LPTK, especially Tarbiyah and Teacher Training Faculty (FITK) and schools are at the forefront of the struggle to constantly make changes, innovations and reforms in how to educate and train students to face the challenges of the 21st century. This research aims to develop a model problem learning integrated science, technology, engineering, and mathematics (STEM) based on nanotechnology as well as to know its effect on increasing student science literacy. The research method used is the research and development (R & D) method which includes the stages of define, design, and develop with the sample of Chemistry Education FITK UIN Syarif Hidayatullah Semester 4 Academic Year 2016/2017. The instruments used in this study consist of essay tests, questionnaires, observation sheets, and validation sheets. The data obtained were analyzed by quantitative descriptive technique. The results of the study were (1) the average score of N-Gain (%) of the students' learning outcomes of 45.6% (medium category), (2) The average value of N-Gain (%) in each aspect of science literacy sequentially, among others: on the aspect of science application context of 51.5 (medium category); on aspects of science content, amounting to 39.1 (medium category); as well as on aspects of the science process of 38.6 (medium category).

Keywords: Problem Based Learning; Science, Technology, Engineering, and Mathematics (STEM); Nanotechnology, Literacy Science; R & D.