

THE DEVELOPMENT AN INNOVATIVE TEACHING MATERIAL WITH PROJECT BASED LEARNING TO INCREASE HIGH ORDER THINKING SKILL (HOTS) IN TEACHING OF PAPER CHROMATOGRAPHY

Elisabeth May Dwi Wenty (4171131012)

ABSTRACT

This study aims to develop an innovative teaching material with project-based learning in teaching of paper chromatography to increase the High Order Thinking Skills of students at the Universitas Negeri Medan according to the KKNI curriculum with BSNP standards. The type of research is Research and Development (R&D) with the modified ADDIE model. The population of this research is the fourth-semester students and lecturers of Chemistry, Universitas Negeri Medan. The sample in this study was taken by purposive sampling consisting of 2 parallel classes of fourth semester students with 51 students and 3 expert lecturers as validators. The data was processed descriptively, the average eligibility of content was 3.57, language was 3.62, presentation was 3.55 and graphic was 3.70, the teaching materials developed were very valid based on the BSNP standard criteria. The average study activity of students is 96.85%. The ability of high order thinking skills of students has increased by 69% in medium categories. One sample t-test was used to test the hypothesis at the sig. 0.05, it is obtained that $t_{\text{count}} > t_{\text{table}}$ is $108.424 > 2.00856$, meaning that the teaching materials developed can improve the learning outcomes of students. The average of innovative teaching materials is 80% which means that it can guarantee the effectiveness of using innovative teaching materials with project-based learning in paper chromatography teaching that is well developed and according to BSNP standards and is eligible to use.

Keyword : R&D, ADDIE Model, Innovative Teaching Material, Project Based Learning, Student Activities, High Order Thinking Skill (HOTS), Student Outcome, Paper Chromatography, BSNP Standard.