

The effectiveness of scientific approach using encyclopedia as learning materials in improving students' science process skills in science

ABSTRACT

A scientific approach for biology students in the Vertebrate course is needed in order to improve the skills and enrich the experience for new spirit of learning. The research was a quantitative research aiming to explain the influence of the encyclopedia as learning materials used in the scientific approach to improving the students' science process skills. Meanwhile, to reveal the influence of each indicator in each predictor, a qualitative descriptive analysis was employed. The encyclopedia was found to be able to provide visualization to represent an explanation. The respondents in this study were biology students who attended the Vertebrate course. Thirty respondents were selected through a cluster random sampling technique. A test of science process skills was the instrument of this research. Furthermore, the ANOVA was utilized in testing the hypothesis. The analysis results showed that there was a different effect of the learning approach on the basic science process skills. Moreover, there was also a significant influence of the scientific approach to basic science processing skills at a significance level of 0.001 (on corrected model) with F value equal to 7.411. Meanwhile, the significance level for basic science process skills was 0.024 with the p-value <0.05 and F value of 5.357. For the integrated science, there was a significant effect of the learning approach to the integrated science process skills at the significance level of 0.000 with the F value of 12.537. The significance value for the integrated science process skills was 0.044 with p-value <0.05 and F value of 4.224.

Keyword: Encyclopedia; Scientific approach; Science process skills