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## Developing an integrated biology module for students' environmental attitude instruments

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### Abstract

The development of modules based on environmental attitudes has been initiated but has not yet been integrated with instruments. This research aims to develop learning biology material and test the instruments' reliability in improving students' environmental attitudes. This development research uses the 4D model by Thiagarajan (1974). Field testing was conducted involving 150 students of Senior High School 1 of Carrngin – West Java, Indonesia. The data collection instruments using an expert validation sheet and students' environmental attitudes sheet. Experts validation involved material, instructional design, and character education expert. Indicators for measuring environmental attitudes use the Environmental Attitude Scale (EAS), which consists of four subscales that refer to Ugulu (2013). According to EAS, the students' environmental attitudes are shown on the Eigen values of the four factors measured. The data analysis was performed using descriptive statistics. The results showed that the suitability aspects of material design and character education followed the average values of 90, 78, and 88 respectively. Meanwhile, Eigen values for environmental awareness factors (5,718); attitudes towards recovery (4,683); attitudes towards recycling (3,512); environmental consciousness and behavior (2,285). While Cronbach Alpha coefficients 0.81. Thus, the instruments integrated into module development carried out in this study are very capable of measuring student environmental attitudes. This study recommends the use of modules in developing students' environmental attitudes.

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