

ABSTRAK

Kemampuan berpikir kritis merupakan kemampuan penting yang perlu dikembangkan dalam pembelajaran matematika agar siswa mampu memahami, menganalisis, dan menyelesaikan permasalahan kontekstual secara tepat. Salah satu upaya untuk memfasilitasi kemampuan tersebut adalah melalui penggunaan modul ajar yang kontekstual dan relevan dengan kehidupan siswa. Penelitian ini bertujuan untuk (1) mengembangkan modul ajar topik ukuran pemusatan data berbasis isu sampah anorganik untuk siswa kelas VIII SMP, (2) menilai kualitas modul ajar berdasarkan aspek kelayakan, kepraktisan, dan keefektifan, serta (3) mendeskripsikan kemampuan berpikir kritis siswa setelah menggunakan modul ajar yang dikembangkan.

Penelitian ini merupakan penelitian pengembangan (R&D) dengan model pengembangan ADDIE yang meliputi tahap *Analyze, Design, Development, Implementation, Evaluation*. Instrumen pengumpulan data yang digunakan meliputi lembar validasi, kuesioner kepraktisan, soal kemampuan berpikir kritis, pedoman wawancara, dan pedoman observasi. Penelitian ini dilaksanakan pada siswa kelas VIII H di SMP Pangudi Luhur 1 Yogyakarta sebagai subjek penelitian.

Menggunakan ADDIE, penelitian ini telah mengembangkan modul ajar sesuai dengan kebutuhan siswa, yaitu pembelajaran yang mengintegrasikan isu kontekstual berupa isu sampah anorganik. Modul ajar ini dirancang dengan memanfaatkan data timbulan sampah di kantin sekolah serta data timbulan sampah di Kota Yogyakarta yang menunjukkan bahwa permasalahan sampah masih menjadi isu yang memerlukan perhatian serius. Data tersebut digunakan sebagai konteks pembelajaran sehingga siswa dapat mengidentifikasi, menganalisis, dan mengolah data yang telah disediakan dalam kegiatan pembelajaran. Modul ajar yang dikembangkan memiliki kualitas sangat layak dengan presentase 87,71%, sangat praktis dengan presentase 92,88%, dan efektif dengan presentase 76,67%. Meskipun demikian, sebagian siswa masih mengalami kesulitan akibat banyaknya informasi dan besarnya data yang digunakan. Implementasi modul menunjukkan bahwa siswa mampu memahami permasalahan kontekstual, mengaitkan konsep ukuran pemusatan data dengan isu sampah anorganik, serta menganalisis data dan menarik kesimpulan. Kemampuan berpikir kritis siswa berada pada kategori tinggi dengan presentase rata-rata 82,5%, namun masih ditemukan kelemahan pada indikator evaluasi, khususnya dalam menentukan ukuran pemusatan data yang paling mewakili dan memberikan alasan yang logis. Secara keseluruhan, modul ajar yang dikembangkan dinyatakan layak, praktis, dan efektif serta mampu memfasilitasi kemampuan berpikir kritis siswa.

Kata kunci: Modul Ajar, Ukuran Pemusatan Data, Sampah Anorganik, Kemampuan Berpikir Kritis

ABSTRACT

Critical thinking is an essential skill that needs to be developed in mathematics learning so that students can understand, analyze, and solve contextual problems appropriately. One effort to facilitate this skill is through the use of a contextual teaching module that is relevant to students' daily lives. This study aims to (1) develop a teaching module on measures of central tendency based on the issue of inorganic waste for eighth-grade junior high school students, (2) assess the quality of the module in terms of validity, practicality, and effectiveness, and (3) describe students' critical thinking skills after using the developed module.

This study is a research and development (R&D) study using the ADDIE model, which consists of the Analyze, Design, Development, Implementation, and Evaluation stages. The data collection instruments used included validation sheets, practicality questionnaires, critical thinking test items, interview guidelines, and observation guidelines. This research was conducted with eighth-grade students of class VIII H at SMP Pangudi Luhur 1 Yogyakarta as the research subjects.

Through the ADDIE stages, this study developed a teaching module tailored to students' needs, namely learning that integrates the contextual issue of inorganic waste. The module was designed using data on waste generation in the school canteen as well as waste generation data in the City of Yogyakarta, which indicate that the waste problem remains a serious issue requiring attention. This data was used as the learning context so that students could identify, analyze, and process the data provided in the learning activities. The developed teaching module was rated as highly valid (87.71%), highly practical (92.88%), and effective (76.67%). Nevertheless, some students still experienced difficulties due to the large amount of information and the size of the data used. The implementation of the module showed that students were able to understand contextual problems, relate the concept of measures of central tendency to the issue of inorganic waste, and analyze data to draw conclusions. Students' critical thinking skills fell into the high category, with an average percentage of 82.5%; however, weaknesses were still found in the evaluation indicator, particularly in determining the most representative measure of central tendency and providing logical reasoning. Overall, the developed teaching module was found to be valid, practical, and effective, and was able to facilitate students' critical thinking skills.

Keywords: Teaching Module, Measures of Central Tendency, Inorganic Waste, Critical Thinking Skills.