

ABSTRAK

Muhamad Riyyan Ramadhan: Penerapan Pembelajaran Berbasis Proyek pada Pembuatan Sampo dari Limbah Kulit Pisang untuk Meningkatkan Kreativitas Siswa pada Materi Koloid.

Penelitian ini bertujuan mengkaji penerapan pembelajaran berbasis proyek pada pembuatan sampo dari limbah kulit pisang dalam meningkatkan kreativitas siswa pada materi koloid serta menghasilkan produk sampo dengan karakteristik yang sesuai. Penelitian menggunakan metode *pre experiment* dengan desain *One Group Pretest-Posttest*. Subjek penelitian adalah siswa kelas XI SMAN 1 Nagreg. Instrumen penelitian meliputi lembar observasi aktivitas siswa, lembar kerja, lembar penilaian kreativitas, penilaian produk dan presentasi, serta lembar uji karakteristik sampo. Data dianalisis berdasarkan keterlaksanaan pembelajaran, hasil *pretest* dan *posttest*, penilaian kreativitas, serta karakteristik produk. Hasil penelitian menunjukkan bahwa pembelajaran berbasis proyek terlaksana dengan sangat baik pada setiap tahapan *Project Based Learning*, dengan aktivitas siswa berada pada rentang 88,88–95,55 dan hasil pengerjaan lembar kerja 72,22–100. Nilai rata-rata *pretest* dan *posttest* meningkat dari 56,45 menjadi 74,63. Tiga formula sampo yang dihasilkan memiliki karakteristik sesuai parameter penelitian, dengan viskositas masing-masing 962 cP, 1.725 cP, dan 1.518 cP. Dengan demikian, penerapan pembelajaran berbasis proyek pada pembuatan sampo dari limbah kulit pisang dapat meningkatkan kreativitas siswa pada materi koloid serta menghasilkan produk dengan karakteristik sesuai parameter penelitian.

Kata Kunci: Koloid, kreativitas, limbah kulit pisang, pembelajaran berbasis proyek, sampo.

ABSTRACT

Muhamad Riyyan Ramadhan: The Implementation of Project-Based Learning (PjBL) in Making Shampoo from Banana Peel Waste to Enhance Students' Creativity on the Colloid Topic.

This study aimed to analyze the implementation of Project-Based Learning (PjBL)—specifically the production of shampoo from banana peel waste—to enhance Grade XI students' creativity regarding the topic of colloids, as well as to analyze the characteristics of the resulting products. A pre-experimental method with a One-Group Pretest-Posttest design was employed. The study was conducted with Grade XI students at SMAN 1 Nagreg over two sessions. Data were collected using student activity observation sheets, project-based worksheets, pretest and posttest assessments, creativity assessment sheets, poster and presentation evaluations, and shampoo characteristic test sheets. The results showed that student activity scores across the six stages of PjBL ranged from 88.88 to 95.55, while worksheet scores ranged from 72.22 to 100. The average pretest and posttest scores were 56.45 and 74.63, respectively, with an N-gain of 0.3938 (moderate category) and a significant difference confirmed by a paired sample t-test ($p < 0.001$). N-gain values based on creativity indicators were 0.28 for fluency, 0.28 for flexibility, 0.46 for originality, and 0.38 for elaboration. The average creativity assessment score during the project was 92.71, falling into the "very good" category. Three shampoo formulas containing 2%, 4%, and 6% banana peel extract yielded pH levels of 5, 6, and 5, and viscosities of 962, 1,725, and 1,518 cP, respectively. These results demonstrate that PjBL can effectively integrate colloid concepts, waste utilization, practical activities, and the development of student creativity.

Keywords: Project-Based Learning (PjBL), creativity, banana peel waste, shampoo, colloid