

**PENGEMBANGAN SUMBER BELAJAR INOVATIF BERBASIS  
PROYEK UNTUK MENINGKATKAN KEMAMPUAN BERPIKIR KRITIS  
PADA PENGAJARAN ANALISIS ANION**

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**Abstrak**

Penelitian ini bertujuan untuk mengembangkan sumber belajar inovatif berbasis proyek untuk meningkatkan kemampuan berpikir kritis pada pokok bahasan analisis anion. Sampel pada penelitian ini adalah dua kelas mahasiswa jurusan pendidikan kimia, FMIPA, Universitas Negeri Medan angkatan 2020. Pengembangan produk dengan model ADDIE. Standarisasi produk dilakukan oleh validator materi dan media masing-masing sebanyak 2 orang. Hasil penelitian menunjukkan bahwa (1) Analisis sumber belajar pegangan mahasiswa pada pokok bahasan analisis anion memperoleh hasil sebesar 71,75% artinya cukup layak dan tidak perlu revisi. (2) Komponen yang diintegrasikan kedalam sumber belajar inovatif adalah bahan ajar berupa *e-modul*, paket mini proyek, video pembelajaran dan praktikum. (3) Hasil analisis standarisasi sumber belajar inovatif berbasis proyek oleh validator ahli materi dan media diperoleh sebesar 89,25% artinya sangat layak dan tidak perlu revisi. (4) Peningkatan hasil belajar kelas eksperimen didapatkan rata-rata sebesar 0,71 (tinggi) sedangkan pada kelas kontrol didapatkan rata-rata sebesar 0,50 (sedang). (5) Kemampuan berpikir kritis pada kelas eksperimen diperoleh rata-rata sebesar 85,53 sedangkan pada kelas kontrol diperoleh nilai rata-rata sebesar 79,49. (6) Respon mahasiswa setelah menggunakan sumber belajar inovatif berbasis proyek tergolong sangat baik. (7) Terdapat hubungan positif antara peningkatan hasil belajar dengan kemampuan berpikir kritis mahasiswa dengan  $r = 0,949$  (sangat kuat). Berdasarkan hasil penelitian diperoleh bahwa kemampuan berpikir kritis mahasiswa yang menggunakan sumber belajar inovatif berbasis proyek lebih tinggi dibandingkan dengan yang tidak menggunakan sumber belajar tersebut.

**Kata Kunci :** Kemampuan Berpikir Kritis, Peningkatan Hasil Belajar, Respon, Sumber Belajar.



**DEVELOPMENT OF PROJECT-BASED INNOVATIVE LEARNING  
RESOURCES TO IMPROVE CRITICAL THINKING SKILLS IN ANION  
ANALYSIS TEACHING**

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**Abstract**

This study aims to develop project-based innovative learning resources to improve critical thinking skills on the subject of anion analysis. The samples in this study were two classes of students majoring in chemistry education, FMIPA, Medan State University batch 2020. Product development using the ADDIE model. Product standardization was carried out by 2 material and media validators each. The results showed that (1) The analysis of student learning resources on the subject of anion analysis obtained a result of 71.75%, meaning that it was quite feasible and did not need revision. (2) The components that are integrated into innovative learning resources are teaching materials in the form of e-modules, mini project packages, learning videos, and practicums. (3) The results of the standardization analysis of project-based innovative learning resources by material and media expert validators were obtained at 89.25%, which means that it is very feasible and does not need revision. (4) The increase in learning outcomes for the experimental class was obtained by an average of 0.71 (high) while in the control class it was obtained at an average of 0.50 (medium). (5) The ability to think critically in the experimental class obtained an average of 85.53 while the control class obtained an average value of 79.49. (6) Student responses after using project-based innovative learning resources are classified as very good. (7) A positive relationship between improving learning outcomes and students' critical thinking skills with  $r = 0.949$  (very strong). Based on the results of the study, it was found that the critical thinking skills of students who used innovative project-based learning resources was higher than those who did not use these learning resources.

**Keywords :** Critical Thinking Skills, Improvement of Learning Outcomes, Learning Resources, Response.

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