ABSTRAK

FAUZIAH. Pengembangan Bahan Ajar Kimia SMA/MA Berbasis CTL-PBL Untuk Meningkatkan Kemampuan Literasi Sains Kimia dan Berpikir Kritis Siswa. Disertasi, Program Pasca Sarjana, Universitas Negeri Medan, Juni 2024.

Kemampuan literasi sains dan berpikir kritis siswa dewasa ini telah menjadi fokus utama dalam proses pembelajaran di kelas. Guru juga dituntut untuk lebih inovatif dalam menyusun bahan ajar yang mampu meningkatkan kemampuan literasi sains dan berpikir kritis siswa. Permasalahan yang dirumuskan pada penelitian ini adalah pengembangan bahan ajar kimia berbasis CTL-PBL untuk meningkatkan kemampuan literasi sains kimia dan kemampuan berpikir kritis siswa, serta tujuan penelitian ini adalah mengembangkan bahan ajar kimia berbasis CTL-PBL yang layak, praktis dan efektif meningkatkan kemampuan literasi sains kimia dan berpikir kritis siswa. Pengembangan bahan ajar berbasis CTL-PBL menggunakan model ADDIE. Instrumen penelitian yang digunakan meliputi lembar validasi ahli, lembar observasi, angket respon siswa dan tes kemampuan literasi sains kimia dan tes kemampuan berpikir kritis. Data dianalisis menggunakan teknik analisis kuantitatif dan kualitatif meliputi teknik analisis kelayakan, analisis kepraktisan dan analisis keefektifan dengan pendekatan *one-sample t-test* dan pendekatan MANOVA satu jalur. Hasil penelitian ini menyimpulkan bahwa bahan ajar kimia SMA/MA berbasis CTL-PBL materi larutan asam basa dirancang dalam bentuk bahan ajar elektronik (*e-book*) dan format yang digunakan memenuhi kriteria menarik, layak, praktis dan efektif meningkatkan kemampuan literasi sains kimia dan berpikir kritis siswa. Kelayakan bahan ajar telah terpenuhi berdasarkan hasil penilaian tim validator ahli materi dengan rerata skor 4,42 (layak) maupun hasil penilaian tim validator ahli media dengan rerata skor 4,59 (layak). Kepraktisan terpenuhi berdasarkan hasil observasi aktivitas guru dengan rerata skor 4,65 (praktis) dan aktivitas siswa dengan rerata skor 4,45 (praktis) serta hasil angket respon siswa dengan rerata skor 4,07 (praktis). Keefektifan terpenuhi berdasarkan hasil evaluasi meliputi persentase ketuntasan belajar untuk literasi sains kimia sebesar 97,37% dan untuk kemampuan berpikir kritis sebesar 100%), serta hasil pengujian statistik menunjukan bahwa penerapan bahan ajar secara parsial maupun simultan efektif meningkatkan kemampuan literasi sains kimia dan kemampuan berpikir kritis siswa ($p = 0{,}000 < 0{,}05$). Sejalan dengan hasil penelitian ini, peneliti menyarankan kepada guru maupun peneliti selanjutnya untuk dapat melakukan inovasi dan pengembangan bahan ajar (*e-book*) berbasis CTL-PBL pada materi dan tingkatkan kelas lainnya sehingga dihasilkan bahan yang inovatif berbasis teknologi digital yang dapat meningkatkan kemampuan literasi sains dan berpikir kritis siswa.

Kata Kunci: Bahan Ajar (*e-book*), CTL-PBL, Kemampuan Literasi Sains Kimia, Kemampuan Berpikir Kritis

ABSTRACT

FAUZIAH. Development of Chemistry Teaching Materials Based CTL-PBL to Improve Students' Chemical Science Literacy and Critical Thinking Abilities. Dissertation. Postgraduate Program, State University of Medan, June 2024.

Science literacy and critical thinking skills students today have become the main focus in the learning process in class. Teachers are also required to be more innovative in preparing teaching materials that can improve the ability of science literacy and critical thinking of students. The problem formulated in this study is the development of CTL-PBL based chemical teaching materials to improve the ability of chemical science literacy and critical thinking skills of students, as well as the purpose of this study is to develop chemical teaching materials based on CTL-PBL that are appropriate, practical and effective Chemistry and critical thinking of students. Development of CTL-PBL-based teaching materials using the ADDIE model. The research instruments used include expert validation sheets, observation sheets, student response questionnaires and chemical science literacy ability tests and critical thinking ability tests. Data were analyzed using quantitative and qualitative analysis techniques including feasibility analysis techniques, practicality analysis and effectiveness analysis using the one-sample t-test approach and one-way MANOVA approach. The results of this research conclude that CTL-PBL based SMA/MA chemistry teaching materials on acid-base solutions are designed in the form of electronic teaching materials (e-books) and the format used meets the criteria of being attractive, feasible, practical and effective in improving chemical science literacy and thinking skills. critical students. The feasibility of teaching materials has been fulfilled based on the assessment results of the material expert validator team with an average score of 4.42 (feasible) and the results of the media expert validator team assessment with an average score of 4.59 (feasible). Practicality is fulfilled based on the results of observing teacher activities with an average score of 4.65 (practical) and student activities with an average score of 4.45 (practical) as well as the results of student response questionnaires with an average score of 4.07 (practical). Effectiveness is fulfilled based on evaluation results including the percentage of learning completeness for chemistry science literacy of 97.37% and for critical thinking skills of 100%), as well as statistical test results showing that partial or simultaneous application of teaching materials is effective in improving chemistry science literacy skills and thinking skills. students' critical thinking ($p = 0.000 < 0.05$). In line with the results of this research, the researcher suggests that teachers and future researchers can innovate and develop CTL-PBL based teaching materials (e-books) in other classes so that innovative materials based on digital technology can be produced that can improve scientific literacy skills. and students' critical thinking.

Keywords: Teaching Material (*e-book*), CTL-PBL, Chemical Science Literacy Ability, Critical Thinking Ability