

## ABSTRAK

**SITI ARPAH (8226182028).** “Pengembangan *E-booklet* Berbasis Pendekatan STEAM untuk Meningkatkan Hasil Belajar dan Berpikir Kritis IPA pada Materi Sistem Pernapasan Manusia SDN 104208 Cinta Rakyat. Tesis. Medan: Program Pascasarjana Universitas Negeri Medan, Februari 2024.

Pendekatan STEAM dalam pembelajaran IPA di sekolah dasar memberikan dampak positif pada pengalaman belajar siswa. Sumber belajar yang mutakhir termasuk fasilitas yang mendukung peningkatan kemampuan hasil belajar dan berpikir kritis siswa, salah satu bentuk sumber belajar tersebut adalah *e-booklet* berbasis pendekatan STEAM. *E-booklet* merupakan buku yang tersedia dalam wujud digital dan dapat menampilkan teks, gambar, serta video pembelajaran, kemudian pendekatan STEAM merupakan upaya untuk mengamati, mengeksplorasi, dan mengajukan pertanyaan terkait fenomena, dengan demikian, tujuan dari penelitian ini adalah untuk (1) mengetahui validitas *e-booklet* berbasis STEAM pada materi sistem pernapasan manusia (2) mengetahui praktikalitas *e-booklet* berbasis STEAM pada materi sistem pernapasan manusia; dan (3) mengetahui efektivitas *e-booklet* berbasis STEAM dalam meningkatkan hasil belajar dan berpikir kritis siswa pada materi sistem pernapasan manusia. Proses penelitian dilakukan di SDN 104208 Cinta Rakyat Kabupaten Deli Serdang. Subjek penelitian ini melibatkan ahli materi, media, dan bahasa, serta guru kelas V dan siswa kelas VA sebagai eksperimen dan kelas VB sebagai kontrol. Metode penelitian dengan pendekatan penelitian research and development menggunakan model ADDIE. Instrumen penelitian yang digunakan adalah lembar observasi, wawancara, lembar validasi, angket respon guru dan siswa, serta instrumen tes. Teknik pengumpulan data dalam penelitian ini adalah observasi, wawancara, dan tes, dengan teknik analisis data uji validitas, tingkat kesukaran, daya beda, dan reliabilitas untuk instrumen tes, dan uji normalitas serta *paired sample t-test* untuk uji hipotesis penelitian.. Hasil penelitian ini menunjukkan bahwa 1) *E-booklet* berbasis STEAM yang dikembangkan valid dengan perolehan rata-rata ahli materi 86,3% ; ahli media 83,3%; dan ahli bahasa 91% dengan klasifikasi sangat layak 2) *E-booklet* berbasis STEAM yang dikembangkan praktis dengan perolehan rata-rata skor dari guru kelas V 94% dan perolehan rata-rata kepraktisan siswa 86% klasifikasi sangat praktis 3) *E-booklet* berbasis STEAM yang dikembangkan efektif terhadap hasil belajar dan berpikir kritis dengan perolehan hasil uji t (2-tailed) yang diperoleh sebesar 0,000 Mengacu pada dasar pengambilan keputusan berarti  $0,000 < 0,05$  atau  $H_0$  ditolak dan  $H_1$  diterima. Dengan demikian, disimpulkan terdapat pengaruh antara *e-booklet* berbasis STEAM terhadap hasil belajar dan berpikir kritis siswa materi sistem pernapasan pada manusia di siswa kelas V SDN 104208 Cinta Rakyat.

Kata Kunci: e-booklet, pendekatan STEAM, hasil belajar, berpikir kritis

## ABSTRACT

**SITI ARPAH (8226182028).** "Development of an *E-booklet* Based on the STEAM Approach to Improve Learning Outcomes and Critical Thinking in Science on Human Respiratory Sistem Material at SDN 104208 Cinta Rakyat. Thesis. Medan: Medan State University Postgraduate Program, February 2024.

The STEAM approach to science learning in elementary schools has a positive impact on students' learning experiences. State-of-the-art learning resources include facilities that support improving students' learning outcomes and critical thinking abilities, one form of learning resource is e-booklets based on the STEAM approach. E-booklets are books that are available in digital form and can display text, images and learning videos, then the STEAM approach is an effort to observe, explore and ask questions related to phenomena, thus, the aim of this research is to (1) find out validity of STEAM-based e-booklets on human respiratory system material (2) determine the practicality of STEAM-based e-booklets on human respiratory system material; and (3) determine the effectiveness of STEAM-based e-booklets in improving students' learning outcomes and critical thinking on human respiratory system material. The research process was carried out at SDN 104208 Cinta Rakyat, Deli Serdang Regency. The subjects of this research involved material, media and language experts, as well as class V teachers and class VA students as experiments and class VB as controls. The research method uses a research and development research approach using the ADDIE model. The research instruments used were observation sheets, interviews, validation sheets, teacher and student response questionnaires, and test instruments. Data collection techniques in this research are observation, interviews, and tests, with data analysis techniques for testing validity, level of difficulty, distinguishability, and reliability for test instruments, and normality tests and paired sample t-tests for testing research hypotheses. Research results This shows that 1) the STEAM-based e-booklet developed is valid with an average acquisition of material experts of 86.3%; media experts 83.3%; and linguist 91% with a very decent classification 2) STEAM-based e-booklet which was developed practically with an average score obtained by class V teachers of 94% and an average practical score obtained by students of 86% with a very practical classification 3) STEAM-based e-booklet which was developed effectively on learning outcomes and critical thinking with t test results (2-tailed) obtained at 0.000. Referring to the basis for decision making, it means  $0.000 < 0.05$  or  $H_0$  is rejected and  $H_1$  is accepted. Thus, it was concluded that there was an influence between STEAM-based e-booklets on students' learning outcomes and critical thinking regarding the human respiratory system in class V students at SDN 104208 Cinta Rakyat.

Keywords: e-booklet, STEAM approach, learning outcomes, critical thinking