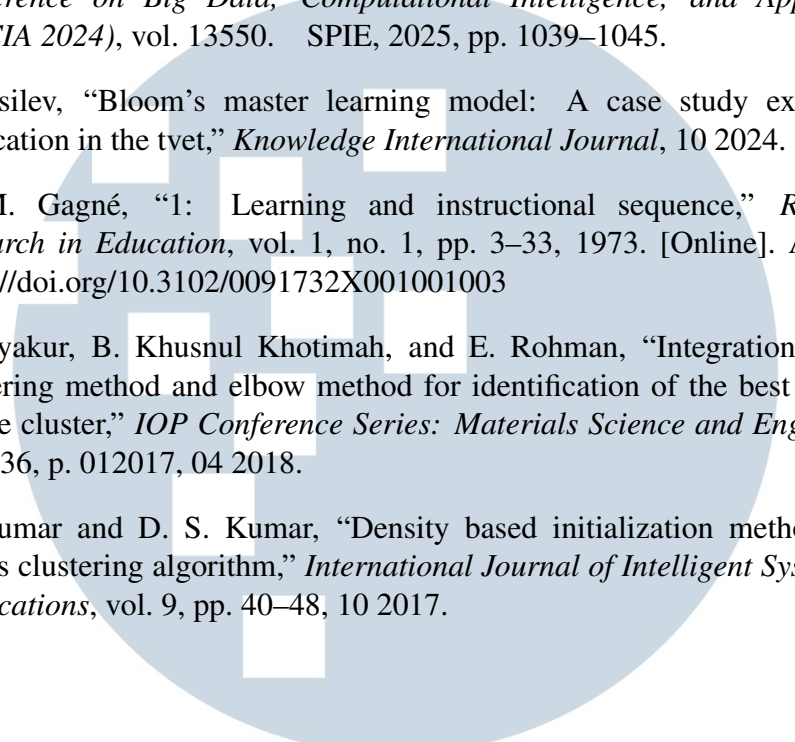


DAFTAR PUSTAKA

- [1] D. P. Wulandari, “Meningkatkan pemahaman konsep matematika siswa sd melalui pembelajaran dengan pendekatan problem posing,” *EduHumaniora — Jurnal Pendidikan Dasar Kampus Cibiru*, vol. 7, 2016.
- [2] W. Rachmawati, D. A. Fitri, R. Saputri, and A. Fransiska, “Tantangan dalam pembelajaran berhitung di kelas awal dan cara mengatasinya,” *TSAQOFAH*, vol. 3, 2023.
- [3] B. P. S. (BPS), “Badan pusat statistik (bps) tahun 2024,” <https://www.bps.go.id>.
- [4] V. Aleven, “Rule-based cognitive modeling for intelligent tutoring systems,” in *Studies in Computational Intelligence*, ser. Studies in computational intelligence. Berlin, Heidelberg: Springer Berlin Heidelberg, 2010, pp. 33–62.
- [5] M. Z. El Khattabi, M. Rahhali, L. Oughdir, and Y. Lahmadi, “Optimizing adaptive learning: Insights from k-means clustering in intelligent tutoring systems,” *International Journal of Intelligent Systems and Applications in Engineering*, vol. 12, no. 3, pp. 1842–1851, Mar. 2024. [Online]. Available: <https://www.ijisae.org/index.php/IJISAE/article/view/5649>
- [6] F. M. Amin, E. F. Rusydiyah, and A. N. Azizah, “Personalized library book recommendations using k-means clustering and association rules,” *Journal of Scientometric Research*, vol. 14, no. 1, p. 32–45, Mar. 2025. [Online]. Available: <http://dx.doi.org/10.5530/jscires.20251005>
- [7] F. A. T. Tobing and T. Haryanto, “Enhancing intelligent tutoring systems through svm-based academic performance classification and rule-based question recommendation,” *Ultimatics : Jurnal Teknik Informatika*, vol. 17, no. 1, p. 82–89, Jun. 2025. [Online]. Available: <https://ejournals.umn.ac.id/index.php/TI/article/view/4178>
- [8] M. Eryılmaz and A. Adabashi, “Development of an intelligent tutoring system using bayesian networks and fuzzy logic for a higher student academic performance,” *Appl. Sci. (Basel)*, vol. 10, no. 19, p. 6638, Sep. 2020.
- [9] R. A. Sottolare, K. W. Brawner, B. S. Goldberg, and H. K. Holden, “The generalized intelligent framework for tutoring (gift),” in *Fundamental issues in defense training and simulation*. CRC Press, 2017, pp. 223–233.
- [10] I. Šarić Grgić, A. Grubišić, L. Šerić, and T. Robinson, *Student Clustering Based on Learning Behavior Data in the Intelligent Tutoring System*, 09 2022, pp. 785–803.

- [11] R. Yildiz, "Handbook of research on educational communications and technology," *Contemporary Educational Technology*, vol. 1, no. 1, pp. 60–83, 2020.
- [12] J. Ilić, M. Ivanović, and A. Klačnja-Milićević, "The impact of intelligent tutoring systems and artificial intelligence on students' motivation and achievement in STEM education: A systematic review," *Journal of Educational Studies in Mathematics and Computer Science*, vol. 1, no. 2, pp. 5–18, 2024.
- [13] R. Buaton, A. Fauzi, B. S. Ginting, and M. B. Yel, "Model pembelajaran adaptif dan cerdas dalam mewujudkan profil pelajar pancasila," *Prosiding Seminar Nasional Riset Dan Information Science (SENARIS)*, vol. 4, 2021.
- [14] M. Chang, G. D'Aniello, M. Gaeta, F. Orciuoli, D. Sampson, and C. Simonelli, "Building ontology-driven tutoring models for intelligent tutoring systems using data mining," *IEEE Access*, vol. 8, pp. 48 151–48 162, 2020.
- [15] I. Šarić-Grgić, A. Grubišić, L. Šerić, and T. J. Robinson, "Student clustering based on learning behavior data in the intelligent tutoring system," *International Journal of Distance Education Technologies (IJDET)*, vol. 18, no. 2, pp. 73–89, 2020.
- [16] D. Schlotterbeck, A. Jiménez, R. Araya, D. Caballero, P. Uribe, and J. Van der Molen Moris, "'teacher, can you say it again?': improving automatic speech recognition performance over classroom environments with limited data," in *Artificial Intelligence in Education*, M. M. Rodrigo, N. Matsuda, A. I. Cristea, and V. Dimitrova, Eds. Cham: Springer International Publishing, 2022, pp. 269–280.
- [17] A. Gregorac, B. Brünner, and M. Ebner, "Chatbots in education: A systematic rapid literature review," 03 2025.
- [18] N. R. Muthaharoh, R. Kusmita, M. Kurniawan, S. Afitri, and A. I. Zulkarnain, "Eksplorasi tantangan dan solusi dalam pembelajaran berdiferensiasi pada kurikulum merdeka," *Al Qodiri : Jurnal Pendidikan, Sosial dan Keagamaan*, vol. 22, no. 1, pp. 46–53, Apr. 2024.
- [19] O. R. Battaglia, B. Di Paola, and C. Fazio, "K-means clustering to study how student reasoning lines can be modified by a learning activity based on feynman's unifying approach," *Eurasia J. Math. Sci. Technol. Educ.*, vol. 13, no. 6, pp. 2005–2038, Jun. 2017.
- [20] A. b. A. Alwahhab, "Proposed recommender system for solving cold start issue using k-means clustering and reinforcement learning agent," in *2020 2nd Annual International Conference on Information and Sciences (AiCIS)*. IEEE, 2020, pp. 13–21.

- 
- [21] J. Zhang, “Personalized learning pathway design and course recommendation based on k-means, apriori, and genetic algorithm,” in *Second International Conference on Big Data, Computational Intelligence, and Applications (BDCIA 2024)*, vol. 13550. SPIE, 2025, pp. 1039–1045.
- [22] I. Vasilev, “Bloom’s master learning model: A case study example of application in the tvet,” *Knowledge International Journal*, 10 2024.
- [23] R. M. Gagné, “1: Learning and instructional sequence,” *Review of Research in Education*, vol. 1, no. 1, pp. 3–33, 1973. [Online]. Available: <https://doi.org/10.3102/0091732X001001003>
- [24] M. Syakur, B. Khusnul Khotimah, and E. Rohman, “Integration k-means clustering method and elbow method for identification of the best customer profile cluster,” *IOP Conference Series: Materials Science and Engineering*, vol. 336, p. 012017, 04 2018.
- [25] A. Kumar and D. S. Kumar, “Density based initialization method for k-means clustering algorithm,” *International Journal of Intelligent Systems and Applications*, vol. 9, pp. 40–48, 10 2017.

