

Developing Story Card Media to Enhance Narrative Writing Skills in Third-Grade Indonesian Language Learning

Aulia Khairani Harahap¹, Zaini Dahlan¹

¹Universitas Islam Negeri Sumatera Utara Medan, North Sumatra, Indonesia

Corresponding author e-mail: aulia306222084@uinsu.ac.id

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Abstract: This study aimed to develop and evaluate story card media for narrative writing instruction in Indonesian language learning for third-grade elementary students, addressing difficulties in generating ideas, organizing events coherently, and expressing thoughts in written form. A Research and Development design with the ADDIE model was employed, involving 23 third-grade students at SD Negeri 101770 Tembung. Data were collected through classroom observation, teacher interviews, expert validation, response questionnaires, and pretest-posttest narrative writing assessments. Expert evaluations yielded feasibility scores of 90% (media), 94% (content), and 91% (language). Teacher and student response scores reached 92% and 90%, respectively, indicating high practicality. The class-level writing score increased from 40% (pretest) to 90% (posttest), with an N-gain of 0.83, categorized as high. This study offers a structured combination of visual sequences and contextual prompts specifically designed for third-grade learners' concrete operational characteristics, an underexplored intervention in Indonesian elementary narrative writing instruction. Teachers can use the cards as a low-complexity scaffold for collaborative planning and individual writing, providing an accessible, ready-to-implement instructional tool. This research contributes a feasible, practical, and effective story card medium for enhancing narrative writing skills, offering preliminary evidence for curriculum developers and educators seeking innovative, visually mediated approaches to literacy instruction in elementary classrooms.

Keywords: ADDIE Model, Elementary Education, Narrative Writing, Story Card Media, Writing Instruction

A. Introduction

Narrative writing is a central component of Indonesian language learning because it requires students to transform experiences and ideas into an organized written text. At the elementary level, students must learn to identify characters and settings, arrange events in a logical sequence, select appropriate vocabulary, and produce sentences that can be understood by readers. These demands make narrative writing more than a transcription activity; it is a process of planning, organizing, composing, and reviewing meaning (Chung et al., 2021).

The educational importance of reading and writing is also consistent with Islamic teachings (Altinyelken, 2021). Surah Al-'Alaq emphasizes reading and the role of the pen in the development and transmission of knowledge, while Surah An-Nahl highlights the importance of explaining knowledge clearly so that it can be understood. In classroom practice, story cards provide a concrete way to translate these principles into instruction: the cards make ideas visible, establish a purposeful sequence, and help students communicate a coherent message through writing.

Initial observation and an interview with the third-grade teacher at SD Negeri 101770 Tembung indicated that many students had difficulty developing story ideas, arranging plots coherently, choosing vocabulary, and expressing ideas in clear sentences. Writing activities were generally assigned without varied instructional media, and the available visual support was largely limited to posters. Consequently, students often began writing without a clear plan and produced stories with incomplete or poorly connected events (Kirby et al., 2021).

The selection of story cards was guided by two complementary theoretical perspectives. From the perspective of cognitive development, third-grade students are generally in the concrete operational stage and benefit from visible, manipulable representations rather than purely abstract explanations. The media therefore use familiar school-activity illustrations, short prompts, and sequential cards that allow students to see and physically arrange the structure of a story. From a constructivist perspective, students build knowledge actively by observing, discussing, sequencing, explaining, and composing. The learning procedure was therefore designed to move from collaborative card arrangement to individual narrative writing and oral presentation (Liu et al., 2022).

Earlier studies on picture and word cards have generally focused on testing ready-made media or comparing card-assisted instruction with conventional teaching. These studies indicate that visual prompts can support writing, but they provide limited documentation of how the medium is systematically designed, validated by different experts, revised, implemented, and evaluated for both practicality and learning improvement. The present study addresses this gap through a complete ADDIE development cycle and integrates visual design, content suitability, language appropriateness, user responses, and pretest-posttest evidence in one development study.

The novelty of this study lies in the development of a contextual story-card system that combines illustrated event sequences, keyword prompts, simple operating instructions, and a collaborative-to-individual writing routine for third-grade learners. Accordingly, the study addresses three research questions: (1) How can story card media be developed to support narrative writing in third-grade Indonesian language learning? (2) What are the validity and practicality levels of the developed medium based on expert and user evaluations? and (3) To what extent

does the medium improve students' narrative writing performance in the participating class?

B. Methods

Research Design and Rationale

This study employed Research and Development using the ADDIE model: Analysis, Design, Development, Implementation, and Evaluation. ADDIE was selected because its sequential but revisable structure aligns needs analysis, product specifications, expert review, classroom use, and outcome evaluation (Hijazi et al., 2026). Compared with a one-step media trial, the model provides a traceable process for identifying the learning problem, translating needs into design features, revising the product after validation, and examining how the final medium functions in an authentic classroom.

Setting and Participants

The study was conducted in a regular third-grade class at SD Negeri 101770 Tembung, Deli Serdang Regency, North Sumatra. The participants were 23 students, comprising 14 boys and 9 girls. The class was selected because the preliminary needs analysis identified persistent difficulties in narrative writing and limited use of media designed specifically for planning and sequencing stories (Anders & Dux Speltz, 2025). One third-grade teacher participated in the needs analysis and practicality evaluation. Three validators evaluated the product: Andina Halimsyah Rambe, M.Pd. as the media expert; Indra Rasyid Juliaanto, M.Pd. as the content expert; and Anugerah Agung Pohan, S.Pd., M.Pd. as the language expert.

Table 1. Study setting and participant characteristics

Characteristic	Description
School context	Public elementary school; regular third-grade Indonesian language class
Location	Deli Serdang Regency, North Sumatra, Indonesia
Students	23 students: 14 boys and 9 girls
Teacher participant	One third-grade classroom teacher
Expert validators	One media expert, one content expert, and one language expert

ADDIE Development Procedure

Analysis

On February 2, 2026, the researchers observed the narrative writing lesson and interviewed the classroom teacher. The observation focused on student engagement, the steps used to teach writing, the types of media available, and recurring student difficulties. The interview explored difficulties in generating ideas, organizing

events, vocabulary use, current instructional support, and features expected from a practical classroom medium (Kim et al., 2025).

Design

The needs analysis was translated into product specifications (Crommelin et al., 2021). The cards used familiar school-activity themes, visible event sequences, keyword prompts, concise instructions, and a portable card holder (Đorđević et al., 2022). The learning sequence required students to observe the cards, arrange them into a logical order, discuss the arrangement, write a narrative based on the sequence, and present the result.

Development

The initial product was created in Canva and evaluated by media, content, and language experts. The media expert assessed visual clarity, layout, size, attractiveness, and usability. The content expert assessed alignment with learning objectives, relevance of school-activity themes, completeness of narrative elements, and sequence coherence. The language expert assessed clarity, vocabulary suitability, sentence accuracy, and comprehensibility of the instructions. The product was revised before classroom implementation (Khojasteh et al., 2025).

Implementation

The revised medium was used with all 23 students during narrative writing instruction. Students worked with the cards to identify and sequence events, discussed their choices with peers, and then produced individual written narratives. The teacher facilitated the activity and completed a response questionnaire; students completed a simplified response questionnaire after using the medium (Fatani, 2020).

Evaluation

Evaluation combined expert validation, teacher and student practicality responses, and a one-group pretest-posttest comparison. The same narrative writing task format and analytic criteria were used before and after the intervention. The assessment focused on idea development, plot organization, vocabulary use, sentence clarity, and writing conventions; scores were converted to percentages for class-level comparison (Ajabshir & Ebadi, 2023).



Figure 1. ADDIE Model Used to Organize the Development Process

Instruments and Operational Definitions

Validity was operationally defined as the degree to which experts judged the medium appropriate in terms of media design, instructional content, and language. Practicality referred to users' judgments of clarity, attractiveness, ease of use, and suitability for classroom activities. Effectiveness referred to the change in class-level narrative writing performance between the pretest and posttest, interpreted using normalized gain (Razza et al., 2025).

Table 2. Data-collection instruments and analytical outputs

Instrument	Respondent/source	Main focus	Output
Observation guide	Classroom observation	Student participation, writing procedure, available media, and recurring difficulties	Needs-analysis description
Semi-structured interview	Third-grade teacher	Writing difficulties, current teaching support, and expected media features	Needs-analysis description
Media validation sheet	Media expert	Visual clarity, layout, size, attractiveness, and usability	Percentage and feasibility category
Content validation sheet	Content expert	Objective alignment, theme relevance, narrative elements, and event coherence	Percentage and feasibility category
Language validation sheet	Language expert	Instruction clarity, vocabulary suitability, and sentence accuracy	Percentage and feasibility category
Response questionnaires	Teacher and 23 students	Ease of use, clarity, attractiveness, and engagement	Percentage and practicality category
Narrative writing assessment	23 students	Ideas, plot organization, vocabulary, sentence clarity, and conventions	Pretest, posttest, and N-gain

Data Analysis

Expert and user-response percentages were calculated as the obtained score divided by the maximum possible score and multiplied by 100 (Chen et al., 2021). Scores of 81-100% were interpreted as highly suitable, 61-80% as suitable, 41-60% as moderately suitable, and 40% or below as unsuitable. The normalized gain was

calculated as $g = (\text{posttest} - \text{pretest}) / (100 - \text{pretest})$. Values of $g \geq 0.70$ were categorized as high, $0.30 \leq g < 0.70$ as moderate, and $g < 0.30$ as low.

Table 3. Interpretation of expert-validation and user-response percentages

Percentage	Interpretation
81-100%	Highly suitable / highly practical
61-80%	Suitable / practical
41-60%	Moderately suitable / moderately practical
$\leq 40\%$	Unsuitable / impractical

Table 4. N-gain interpretation criteria

N-gain value	Category
$g \geq 0.70$	High
$0.30 \leq g < 0.70$	Moderate
$g < 0.30$	Low

The available study record contained aggregate pretest and posttest percentages rather than individual-level scores. It also did not contain item-level questionnaire responses, statistical reliability coefficients, or verbatim interview transcripts. Therefore, standard deviations, score ranges, internal-consistency estimates, and direct quotations could not be reported without inventing data. These reporting boundaries are explicitly acknowledged in the discussion and should be addressed in subsequent research (Belur et al., 2021; Kovacic & Benini, 2022).

C. Results and Discussion

1. Result

Stage 1: Analysis Results

The observation and teacher interview identified four related needs. First, students had difficulty initiating a story because they lacked concrete prompts for generating ideas. Second, they often listed events without a coherent beginning, development, and ending. Third, limited vocabulary and sentence control reduced the clarity of their written expression. Fourth, the available instructional support was dominated by verbal explanation, writing assignments, and general posters rather than a medium designed to scaffold the sequence of a narrative (Darling-Hammond et al., 2020). These findings established the need for a visual, manipulable, and contextually familiar medium.

Stage 2: Design Results and Media Specifications

The resulting design consisted of a portable package, an instruction card, illustrated event cards, and keyword/event cards. School activities were selected because they were familiar to the students and could be transformed into narratives without requiring extensive background knowledge. The instructions guided students to

arrange the cards, discuss the sequence, write a story, and present their work. This structure was intended to reduce the difficulty of beginning a text while preserving opportunities for students to make their own narrative choices (Lindgren Leavenworth & Manni, 2021).



Figure 2. Main Product Components: Story-Card Package and Instruction Card



Figure 3. Examples of Illustrated Sequences And Keyword/Event Cards

Stage 3: Development and Expert Validation Results

Three experts evaluated the initial product. The media expert awarded 54 of 60 points (90%), the content expert awarded 49 of 52 points (94%), and the language expert awarded 33 of 36 points (91%). All three results were within the highly suitable category. The final medium incorporated expert feedback at the level of visual presentation, instructional wording, content alignment, and language accessibility before being used with students (Alobaid, 2020).

Table 5. Summary of Expert-Validation Results

Validator	Expertise	Score obtained	Maximum score	Percentage	Category
Andina Halimsyah Rambe	Media	54	60	90%	Highly suitable
Indra Rasyid Juliaanto	Content	49	52	94%	Highly suitable
Anugerah Agung Pohan	Language	33	36	91%	Highly suitable

Stage 4: Implementation and Practicality Results

During implementation, students examined the illustrations, negotiated the order of events with peers, and used the agreed sequence as a plan for individual writing (Heinonen et al., 2020; Khuder & Negretti, 2026). The three classroom photographs in Figure 4 document distribution of the cards, small-group arrangement and discussion, and teacher-guided presentation. Observational notes indicated that the cards provided a visible reference during planning and reduced students' dependence on repeated teacher prompts.



Figure 4. Classroom implementation of the story-card medium

The teacher response reached 92%, and the student response reached 90%. The average practicality score was therefore 91%, which was categorized as highly practical. These results indicate that the medium was perceived as clear, attractive, and manageable within the classroom routine.

Table 6. Teacher and student practicality responses

Respondent	Number of respondents	Percentage	Category
Teacher	1	92%	Highly practical
Students	23	90%	Highly practical
Average	-	91%	Highly practical

Stage 5: Evaluation and Pretest-Posttest Results

The aggregate class score increased from 40% on the pretest to 90% on the posttest, a gain of 50 percentage points. Using the normalized-gain formula, the result was 0.83, which falls in the high category. The available data support a substantial class-level improvement after the use of the story-card medium. However, because individual scores were not included in the submitted dataset, the distribution of improvement

across students could not be examine (Allensworth & Clark, 2020; Miller-Cotto & Byrnes, 2026).

Table 7. Aggregate pretest-posttest comparison

Measure	Pretest	Posttest	Change / result
Aggregate narrative writing score	40%	90%	+50 percentage points
Normalized gain	-	-	0.83 (high)

2. Discussion

Interpretation of Findings

The results suggest that the story-card medium functioned primarily as a planning scaffold (Yu et al., 2026). Instead of asking students to generate a complete narrative from an empty page, the cards externalized possible characters, settings, and events. This reduced the initial conceptual burden and allowed students to focus on connecting events and expressing them in sentences. The high expert and user ratings indicate that the visual and procedural features were considered appropriate, while the high N-gain provides preliminary evidence that the scaffold was associated with improved class-level performance.

Comparison with Previous Studies

The pattern is consistent with earlier research on picture cards and sequential visual prompts, which generally reports improved idea generation, organization, and student engagement in writing lessons. The present study extends that line of work by documenting a complete development cycle rather than only testing a ready-made medium. It combines three forms of expert validation, teacher and student practicality evaluation, and pretest-posttest assessment in a single product-development process. Nevertheless, comparisons remain descriptive because the present study did not include a control group or inferential statistical analysis (Ismail et al., 2022; Nicolaidou et al., 2023).

Theoretical Implications

The findings support the relevance of concrete operational learning principles for third-grade writing instruction. Students could see, handle, compare, and rearrange representations of events before translating them into abstract written language. The medium also operationalized constructivist learning by requiring students to propose sequences, explain choices, negotiate meaning with peers, and construct an individual text (Pham & Nguyen, 2026; Popa, 2022). In this sense, the cards were not merely decorative images; they served as manipulable cognitive tools linking experience, oral discussion, narrative planning, and written composition.

Practical Implications

For teachers, the medium offers a relatively simple routine that can be integrated into Indonesian language lessons: introduce the theme, distribute mixed cards, ask groups to arrange a logical sequence, discuss alternative plots, and use the sequence as an individual writing plan. The cards may also be differentiated by reducing the number of events for students who require more support or adding open-ended cards for students who need greater challenge. Future production should use original or clearly licensed illustrations and should provide a scoring guide so that writing progress can be monitored consistently (Escalante et al., 2023; Moorhouse et al., 2023; Reynders et al., 2020).

Study Limitations

The study has several limitations. It involved only 23 students from one school, used a one-group pretest-posttest design, and focused on school-activity narratives, limiting generalizability. The available dataset contained only aggregate pretest and posttest percentages, so standard deviations, ranges, and individual learning trajectories could not be reported (Bednorz et al., 2026; van Dijke-Droogers et al., 2025). Item-level questionnaire data and reliability coefficients were unavailable, and the teacher interview record did not contain verbatim transcripts that could support direct quotation. The results may also reflect teacher guidance, familiarity with the topic, or repeated testing in addition to the medium itself. These constraints mean that the findings should be interpreted as promising developmental evidence rather than definitive causal proof (Beets et al., 2021; Ferreira-da-Silva et al., 2026; Riemer & Freund, 2026).

D. Conclusions

This study developed story card media through the ADDIE model and examined its suitability, classroom practicality, and preliminary effectiveness for narrative writing instruction in a third-grade Indonesian language class. The analysis stage identified difficulties in generating ideas, organizing events, selecting vocabulary, and composing clear sentences. These needs were translated into a product consisting of illustrated event cards, keyword prompts, concise instructions, and a collaborative-to-individual writing routine. Expert validation produced scores of 90% for media, 94% for content, and 91% for language, placing all three dimensions in the highly suitable category. The teacher response reached 92%, the student response reached 90%, and the combined practicality score was 91%. At the class level, the writing score increased from 40% before implementation to 90% afterward, producing an N-gain of 0.83 in the high category. These findings indicate that structured visual prompts can help learners begin a narrative, establish a coherent sequence, and translate ideas into written expression. The practical implication is that teachers can use the medium as a manageable planning scaffold rather than as a substitute for

instruction. Its value lies in combining concrete visual support, peer discussion, narrative sequencing, and individual composition within one routine. Teachers can adapt the number and complexity of cards to student needs and use the same framework for personal narratives, fables, or other age-appropriate genres. The findings remain limited by the small single-school sample, absence of a control group, use of aggregate rather than individual score data, lack of statistical reliability evidence for the instruments, and absence of verbatim qualitative transcripts. Future studies should involve larger and more diverse samples, retain individual-level data, test instrument reliability, use independent or multiple raters for writing assessment, and compare the medium with alternative instruction through controlled or quasi-experimental designs. Future research should also examine longer-term retention, transfer to other writing genres, and the use of original or openly licensed illustrations.

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References

- Ajabshir, Z. F., & Ebadi, S. (2023). The effects of automatic writing evaluation and teacher-focused feedback on CALF measures and overall quality of L2 writing across different genres. *Asian-Pacific Journal of Second and Foreign Language Education*, 8(1). <https://doi.org/10.1186/s40862-023-00201-9>
- Allensworth, E. M., & Clark, K. (2020). High School GPAs and ACT Scores as Predictors of College Completion: Examining Assumptions About Consistency Across High Schools. *Educational Researcher*, 49(3), 198–211. <https://doi.org/10.3102/0013189X20902110>
- Alobaid, A. (2020). Smart multimedia learning of ICT: role and impact on language learners' writing fluency – YouTube online English learning resources as an example. *Smart Learning Environments*, 7(1). <https://doi.org/10.1186/s40561-020-00134-7>
- Altinyelken, H. K. (2021). Critical thinking and non-formal Islamic education: Perspectives from young Muslims in the Netherlands. *Contemporary Islam*, 15(3), 267–285. <https://doi.org/10.1007/s11562-021-00470-6>
- Anders, A. D., & Dux Speltz, E. (2025). Developing generative AI literacies through

- self-regulated learning: A human-centered approach. *Computers and Education: Artificial Intelligence*, 9(March). <https://doi.org/10.1016/j.caeai.2025.100482>
- Bednorz, D., Sommerhoff, D., & Heinze, A. (2026). Tracing learning in a digital learning environment: combining process-object theories, individual learning trajectories, and machine learning to predict concept acquisition in mathematics. *Unterrichtswissenschaft*. <https://doi.org/10.1007/s42010-026-00245-z>
- Beets, M. W., von Klingraeff, L., Weaver, R. G., Armstrong, B., & Burkart, S. (2021). Small studies, big decisions: the role of pilot/feasibility studies in incremental science and premature scale-up of behavioral interventions. *Pilot and Feasibility Studies*, 7(1), 1–9. <https://doi.org/10.1186/s40814-021-00909-w>
- Belur, J., Tompson, L., Thornton, A., & Simon, M. (2021). Interrater Reliability in Systematic Review Methodology: Exploring Variation in Coder Decision-Making. *Sociological Methods and Research*, 50(2), 837–865. <https://doi.org/10.1177/0049124118799372>
- Chen, J., Houston, T. K., Faro, J. M., Nagawa, C. S., Orvek, E. A., Blok, A. C., Allison, J. J., Person, S. D., Smith, B. M., & Sadasivam, R. S. (2021). Evaluating the use of a recommender system for selecting optimal messages for smoking cessation: patterns and effects of user-system engagement. *BMC Public Health*, 21(1), 1–13. <https://doi.org/10.1186/s12889-021-11803-8>
- Chung, H. Q., Chen, V., & Olson, C. B. (2021). The impact of self-assessment, planning and goal setting, and reflection before and after revision on student self-efficacy and writing performance. *Reading and Writing*, 34(7), 1885–1913. <https://doi.org/10.1007/s11145-021-10186-x>
- Crommelin, D. J. A., Anchordoquy, T. J., Volkin, D. B., Jiskoot, W., & Mastrobattista, E. (2021). Addressing the Cold Reality of mRNA Vaccine Stability. *Journal of Pharmaceutical Sciences*, 110(3), 997–1001. <https://doi.org/10.1016/j.xphs.2020.12.006>
- Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., & Osher, D. (2020). Implications for educational practice of the science of learning and development. *Applied Developmental Science*, 24(2), 97–140. <https://doi.org/10.1080/10888691.2018.1537791>
- Đorđević, S., Gonzalez, M. M., Conejos-Sánchez, I., Carreira, B., Pozzi, S., Acúrcio, R. C., Satchi-Fainaro, R., Florindo, H. F., & Vicent, M. J. (2022). Current hurdles to the translation of nanomedicines from bench to the clinic. *Drug Delivery and Translational Research*, 12(3), 500–525. <https://doi.org/10.1007/s13346-021-01024-2>
- Escalante, J., Pack, A., & Barrett, A. (2023). AI-generated feedback on writing: insights into efficacy and ENL student preference. *International Journal of Educational Technology in Higher Education*, 20(1). <https://doi.org/10.1186/s41239-023-00425-2>
- Fatani, T. H. (2020). Student satisfaction with videoconferencing teaching quality during the COVID-19 pandemic. *BMC Medical Education*, 20(1), 1–8. <https://doi.org/10.1186/s12909-020-02310-2>
- Ferreira-da-Silva, R., Cruz-Correia, R., & Ribeiro, I. (2026). Beyond black boxes: using

- explainable causal artificial intelligence to separate signal from noise in pharmacovigilance. *International Journal of Clinical Pharmacy*, 48(2), 677–681. <https://doi.org/10.1007/s11096-025-02004-z>
- Heinonen, K., De Grez, N., Hämäläinen, R., De Wever, B., & van der Meijs, S. (2020). Scripting as a pedagogical method to guide collaborative writing: university students' reflections. *Research and Practice in Technology Enhanced Learning*, 15(1). <https://doi.org/10.1186/s41039-020-00131-x>
- Hijazi, M. H. A., Jeffree, M. S., Woon, F. C., Jelip, J., Avoi, R., & Ahmed, K. (2026). Educational frameworks for zoonotic malaria prevention: a narrative review integrating behavioural theory, participatory design, and instructional models for Plasmodium knowlesi in Southeast Asia. *Malaria Journal*, 25(1). <https://doi.org/10.1186/s12936-026-05880-6>
- Ismail, S. M., Rahul, D. R., Patra, I., & Rezvani, E. (2022). Formative vs. summative assessment: impacts on academic motivation, attitude toward learning, test anxiety, and self-regulation skill. *Language Testing in Asia*, 12(1). <https://doi.org/10.1186/s40468-022-00191-4>
- Khojasteh, L., Kafipour, R., Pakdel, F., & Mukundan, J. (2025). Empowering medical students with AI writing co-pilots: design and validation of AI self-assessment toolkit. *BMC Medical Education*, 25(1). <https://doi.org/10.1186/s12909-025-06753-3>
- Khuder, B., & Negretti, R. (2026). Collaborative writing regulation: a comparative case study of co-regulation and socially shared regulation in higher education. *Higher Education*, 91(2), 677–699. <https://doi.org/10.1007/s10734-025-01437-9>
- Kim, J., Yu, S., Detrick, R., & Li, N. (2025). Exploring students' perspectives on Generative AI-assisted academic writing. In *Education and Information Technologies* (Vol. 30, Number 1). <https://doi.org/10.1007/s10639-024-12878-7>
- Kirby, M. S., Spencer, T. D., & Chen, Y. J. I. (2021). Oral Narrative Instruction Improves Kindergarten Writing. *Reading and Writing Quarterly*, 37(6), 574–591. <https://doi.org/10.1080/10573569.2021.1879696>
- Kovacic, Z., & Benini, L. (2022). Striking the balance: Sustainability and institutional transitions in the European Environment Agency. *Futures*, 141(June), 102984. <https://doi.org/10.1016/j.futures.2022.102984>
- Lindgren Leavenworth, M., & Manni, A. (2021). Climate fiction and young learners' thoughts – a dialogue between literature and education. *Environmental Education Research*, 27(5), 727–742. <https://doi.org/10.1080/13504622.2020.1856345>
- Liu, P. L., Ginting, A. M. G., Chen, C. J., & Yeh, H. C. (2022). Students' Performance and Perceptions of Wiki-based Collaborative Writing for Learners of English as a Foreign Language. *SAGE Open*, 12(4), 1–12. <https://doi.org/10.1177/21582440221144953>
- Miller-Cotto, D., & Byrnes, J. P. (2026). Identifying individual cognitive and motivational profiles predictive of academic growth: A combined machine learning and person-centered approach. *Learning and Individual Differences*, 125(April 2025), 102835. <https://doi.org/10.1016/j.lindif.2025.102835>
- Moorhouse, B. L., Yeo, M. A., & Wan, Y. (2023). Generative AI tools and assessment:

- Guidelines of the world's top-ranking universities. *Computers and Education Open*, 5(September), 100151. <https://doi.org/10.1016/j.caeo.2023.100151>
- Nicolaidou, I., Pissas, P., & Boglou, D. (2023). Comparing immersive Virtual Reality to mobile applications in foreign language learning in higher education: a quasi-experiment. *Interactive Learning Environments*, 31(4), 2001–2015. <https://doi.org/10.1080/10494820.2020.1870504>
- Pham, V. P. H., & Nguyen, N. H. V. (2026). The role of teacher and peer feedback in shaping student writing revisions: a complementary feedback model. *Social Sciences and Humanities Open*, 13(May), 103026. <https://doi.org/10.1016/j.ssaho.2026.103026>
- Popa, N. (2022). Operationalizing Historical Consciousness: A Review and Synthesis of the Literature on Meaning Making in Historical Learning. In *Review of Educational Research* (Vol. 92, Number 2). <https://doi.org/10.3102/00346543211052333>
- Razza, R. A., Liu, Q., Feng, R., Hao, X., Kirkman, K. A., & Merrin, G. J. (2025). Cultivating Adolescents' Self-Compassion Through Mindfulness: The Role of Self-Regulation at Both the Individual- and Classroom-Level. *Contemporary School Psychology*, 29(4), 843–854. <https://doi.org/10.1007/s40688-025-00548-5>
- Reynders, G., Lantz, J., Ruder, S. M., Stanford, C. L., & Cole, R. S. (2020). Rubrics to assess critical thinking and information processing in undergraduate STEM courses. *International Journal of STEM Education*, 7(1). <https://doi.org/10.1186/s40594-020-00208-5>
- Riemer, A., & Freund, V. (2026). Generative artificial intelligence in pharmaceutical drug development: A systematic review of time and cost efficiency across discovery, preclinical, and clinical phases. *Intelligent Pharmacy*, 4(2), 145–158. <https://doi.org/10.1016/j.ipha.2025.12.006>
- van Dijke-Droogers, M., Drijvers, P., & Bakker, A. (2025). Effects of a Learning Trajectory for statistical inference on 9th-grade students' statistical literacy. *Mathematics Education Research Journal*, 37(1), 187–210. <https://doi.org/10.1007/s13394-024-00487-z>
- Yu, Y., Corino, G., & Arrivabene, R. (2026). Digital or Tangible? Card-Based Story Writing Interaction Designs with AI: A Comparative Study of GUI and TUI. *International Journal of Human-Computer Interaction*, 0(0), 1–41. <https://doi.org/10.1080/10447318.2026.2658245>