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Integrated research-based learning model through environmental exploration: A strategy for improving students' scientific article writing skills

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Abstract: The purpose of this study was to analyse the implementation of research article writing assignments in the Lower Plant Taxonomy course and evaluate its impact on the development of students' critical thinking and analytical skills, as well as scientific writing abilities. The model used was Research-Based Learning (RBL) integrated with field exploration (Nature Exploration). The method employed was a descriptive research approach, combining both quantitative and qualitative methods. The research sample consisted of 29 third-semester students in Biology Education, selected using a total sampling technique. Data were collected from the assessment of research article assignments based on RPS criteria, as well as semi-structured interviews with lecturers and students. Quantitative data were analysed descriptively, while qualitative data were analysed thematically to identify obstacles. The results showed that the implementation of RBL, structured in three phases (Exploration, Communication Interaction, and Reflection), was generally effective in improving competency. Most students, with an achievement rate of over 80%, achieved excellent performance, especially in the technical and structural aspects of writing, such as the preparation of the Research Methodology (92%) and the Suitability of the Bibliography (95%). However, significant obstacles were found in aspects that require critical analysis and in-depth argumentation, characterised by 17% of shallow Discussion errors and 13% of incomplete Data Analysis errors. Interviews confirmed that the main obstacles were limited guidance time, difficulty in determining original topics, and lack of confidence in developing theoretical arguments. The conclusion of this study confirms that PBR has successfully fostered research literacy and scientific attitudes. Its effectiveness needs to be improved through optimising guidance time, strengthening theoretical literacy, and providing special training to develop data analysis and argumentation skills. This model is relevant as an innovative curriculum for preparing prospective biology teachers who are reflective and research-oriented.

Keywords: Research-Based Learning, Environmental Exploration, Writing Scientific Articles, Taxonomy of Lower Plants

Introduction

Learning in higher education has a strategic role in developing students' intellectual abilities. A critical aspect of higher education is students' ability to think critically and analytically, as well as to develop scientific writing skills. These skills are essential for preparing students to become individuals capable of solving problems scientifically and conveying their findings in publishable written works. Students with stronger critical thinking skills tend to demonstrate better writing performance. They can construct arguments, check the credibility of sources, make decisions, and solve problems more effectively (Yuliarti et al., 2023). Metacognition, critical thinking, and academic writing are closely interconnected. Developing metacognitive awareness improves students' ability to think critically, which directly translates into better academic writing performance. These skills are fundamental to higher education, preparing students to analyse information, solve complex problems, and communicate their findings effectively. Improving these skills cannot be achieved instantly, but through a structured learning process, one of which can be achieved through research-based learning.

A research-based learning approach positions students as central actors in their own educational journey, shifting the focus from traditional, lecturer-centred instruction to a more active, student-driven model. This method encourages students to construct their own understanding by engaging with real-world problems, conducting investigations, and connecting theoretical concepts with practical applications. In this approach, students act not only as recipients of information but also as creators of knowledge through their research activities. This approach is recognised as effective in improving critical thinking skills, analytical skills, and scientific writing (Prayogi et al., 2023).

In the context of biology education, particularly in the Lower Plant Taxonomy course, research-based learning through writing research articles is relevant, as it not only helps students understand taxonomic concepts but also trains them to identify, classify, and write scientific research results. The Lower Plant Taxonomy course examines the classification and identification of lower plants, including algae, fungi, and mosses. This material is essential for Biology Education students because it provides the basic knowledge needed to understand biodiversity, especially regarding plants, which are rarely discussed outside the academic scope. To deepen understanding of this material, writing a research article is one effective strategy. This assignment aims to train students in collecting data in the field, analysing the data, and presenting the results in the form of scientific papers.

However, during its implementation, several obstacles are faced by students. Several studies have shown that students often struggle to understand research methodology and conduct data analysis properly (Nashon & Anderson, 2013). This results in the quality of the articles produced not meeting expectations. On the other hand, lecturers also face challenges in guiding students to complete assignments successfully. Ideally, all students would be able to complete their research article writing assignments with satisfactory results and justify their research through scientific discussions. However, there are still students who are less than optimal in completing this assignment. This condition shows a gap between ideal and factual conditions in the field. Scholars and practitioners across various fields face challenges with research methodologies and data analysis. These challenges range from a lack of strategic awareness and focus to practical issues with manual data processing and distribution, ultimately hindering the effective implementation of research and innovation (Sabatini et al., 2022).

Research-based learning, particularly through models such as Project-Based Learning, provides a powerful, student-centred approach to education. It effectively builds essential 21st-century skills and improves learning outcomes by grounding education in authentic, real-world problems. Despite challenges related to time,

resources, and the need for a cultural shift in the classroom, this method is highly beneficial in preparing students to face complex real-world challenges. Research-Based Learning positions students as creators of knowledge through research activities, not simply as recipients of information. This approach is recognised explicitly for improving critical thinking skills, analytical skills, and scientific writing. These skills are essential for training students to solve problems scientifically and communicate their findings in a publishable written form. A research-based and inquiry-oriented pedagogical approach is practical in fostering critical thinking, analytical skills, and scientific writing. This method requires students to actively engage in processes such as problem-solving, conjecturing, justification, and communicating findings, which directly contribute to the development of these essential academic and professional competencies (Wulandari et al., 2021).

The integration of fieldwork and exploration of the surrounding environment in learning provides significant added value, especially in biology courses such as Lower Plant Taxonomy. Field Exploration (or Nature Exploration) allows students to understand the relevance of theoretical concepts in a real-world context (meaningful learning). Fieldwork serves as a powerful pedagogical tool that bridges the gap between abstract Theory and concrete reality. By immersing students in real-world environments, whether cultural or natural, this method enhances conceptual understanding, increases motivation, and fosters more profound and meaningful learning experiences (Cahyana et al., 2020; Rosita et al., 2025).

In research-based learning theory, students should be able to develop their scientific skills through the research process, including writing articles that meet academic standards and guidelines. However, the implementation of research article writing assignments for students has not been fully optimal. According to Golden's (2023) research, although research-based learning can improve critical thinking skills, some students still struggle to express their research results in the form of effective scientific writing. These difficulties are often related to a weak understanding of research methodology and a lack of experience in writing scientific articles.

Scientific writing is a crucial skill for students, as it serves as an indirect form of communication that enables them to convey ideas, concepts, and thoughts in a structured written format that others can comprehend (Yuliarti et al., 2023). It is considered a crucial skill for 21st-century learning, enabling students to construct arguments, evaluate the credibility of sources, make informed decisions, and solve complex problems. By engaging students in structured, experiential learning models, educators can effectively cultivate the critical thinking and reasoning skills necessary for high-quality scientific writing. These models have a more significant impact than traditional lecture and discussion formats, leading to higher average scores in students' ability to produce scientific papers.

Students often struggle to design systematic investigations and effectively analyse or interpret data. Evidence from various educational contexts suggests that these competencies are usually the weakest areas in students' scientific and statistical literacy. While targeted teaching methods can lead to improvements, these skills represent a significant and persistent barrier to student learning (Utari et al., 2024). A common problem is students' difficulty in formulating research problems from learning objectives, which makes problem-solving efforts less effective. The actual state of research-based learning reveals that, while established models such as inquiry-based learning exist, they encounter practical challenges in their application by students (Yuliarti et al., 2023). Simultaneously, the emergence of AI has introduced new tools that are widely adopted for specific, often preliminary, research tasks. However, there are significant concerns and a clear need for structured training and an ethical framework to ensure the responsible and effective use of these tools in more complex academic work (Zahra Aich et al., 2025).

This study makes a new contribution by providing an in-depth evaluation of how the assignment of writing research articles is implemented in the Lower Plant Taxonomy course and how this assignment affects the quality of students' scientific writing. In addition, this study aims to identify the obstacles faced by students and lecturers in carrying out this task, and to provide recommendations for developing more effective learning strategies.

One of the new values expected from this research is the development of teaching materials that are more relevant and capable of improving students' scientific writing skills. Furthermore, this research is also expected to guide lecturers in developing Semester Learning Plans (RPS) that better support research-based learning. Therefore, this research will not only be helpful for curriculum development for the Lower Plant Taxonomy course but can also be applied to other courses with similar characteristics.

Method

This study employs a descriptive research method, complemented by a quantitative approach. This involves systematic, planned, and clearly structured specifications from the beginning of the research village process (Septiani et al., 2023). This study aims to analyse the application of research article writing assignments in the Lower Plant Taxonomy course. The study was conducted to determine how students completed the assignment and evaluate the assessment results based on the criteria established in the Semester Learning Plan (RPS). This approach was chosen because it accurately describes the actual conditions related to implementing research article writing assignments and their outcomes within the context of research-based learning (Creswell, 2023).

The sample for this study consisted of 29 third-semester students from the Biology Education Study Program at PGRI Silampari University who took the Lower Plant Taxonomy course in the odd semester of the 2024/2025 academic year. The sample selection used a total sampling technique. One study used a non-probability sampling technique known as total population sampling, in which the entire population that met specific criteria was included in the sample. Another study also employed this method, referring to it as a total sampling technique (Syahrial et al., 2022). This method was used because all students in the population participated in this study. Participants were selected based on the criteria of having taken the Lower Plant Taxonomy course and having received an assignment to write a research article.

This research was conducted in several stages as follows:

1. Preparation: Researchers first review and examine the RPS for the Lower Plant Taxonomy course to understand the assessment standards and assignment allocations related to the task of writing research articles.
2. Data Collection: The primary data in this study comprises the results of students' research article assignments, interviews with lecturers, as well as student questionnaires and interviews.
 - a. Research Article Assignment: Students are required to write a research article based on field observations of lower plant taxonomy, tailored to the topics covered in the course. The submitted articles are analysed based on the assessment criteria contained in the RPS.
 - b. Lecturer interviews: Semi-structured interviews were conducted with the supervising lecturers to understand the assignment and article evaluation process, as well as the obstacles they faced in guiding students.
 - c. Student interviews: Interviews were conducted to determine the difficulties students experienced in compiling research articles and how they accounted for their assignments.
3. Data Reduction: Data from student assignments and interview results were reduced and categorised based on emerging themes related to the quality of assignments and students' understanding of research methodology.

4. Data Analysis: The data were analysed using quantitative descriptive analysis techniques. The results of student article assessments were processed to determine the distribution of grades, averages, and task achievement categories. Qualitative data from interviews were analysed using a thematic approach to identify problems and obstacles in the article writing process (Miles et al., 2019).
5. Data Presentation and Conclusions: The analysis results are presented in tabular form to illustrate student performance in writing articles. Conclusions are drawn based on the evaluation of the article writing assignment implementation and interviews.

The instruments used in this study include:

1. Research article assignment assessment instrument: Assessment criteria refer to the RPS, including aspects such as topic relevance and originality, research title, Theory used, relevant research, research methodology, data analysis, discussion, conclusions, suggestions, bibliography, and writing format.
2. Interview guidelines: Semi-structured interview guidelines were used to gather information from the lecturer and students regarding the assignment and assessment process.
3. Questionnaire: An open-ended questionnaire was administered to students to identify the problems they encountered while compiling research articles.

Data was collected through three primary methods:

1. Assessment of Research Article Assignments: Student-submitted articles are analysed using the assessment rubric outlined in the RPS.
2. Interviews with lecturers and students: Qualitative data were gathered through interviews to gain an understanding of the learning process and obstacles encountered during article compilation.
3. RPS Analysis: RPS is analysed to assess the suitability between assignments, assignment results, and established learning standards.

The analysis technique used is quantitative, and the results are based on student assignments. Descriptive statistical analysis was used to calculate the mean, percentage, and distribution of values. Qualitative data were analysed thematically to find patterns and themes that emerged from the results of lecturer and student interviews (Miles et al., 2014). The results of the quantitative and qualitative analyses were then integrated to draw conclusions about the effectiveness of implementing the research article writing task.

Results and Discussion

The integrated research-based learning model for the Lower Plant Taxonomy course involved 29 third-semester students in Biology Education at PGRI Silampari University. The goal was to develop scientific thinking skills and write research articles based on field experiences. Through a constructivist approach, students developed an understanding of the classification and ecology of lower plants through direct exploration activities, data analysis, and scientific reflection, guided by a lecturer who served as a facilitator. During the Exploration phase, students engage in activities such as collecting research results, formulating problems, and analysing data. The lecturer's role is to guide and assess the exploration activities, utilising instruments such as an assessment sheet for exploration and student observation. This phase helps measure student engagement and performance in the activity.

In the communication interaction phase, students present their findings and engage in discussions with group members to compile research articles. Lecturers evaluate both the group discussions and the class discussions between student groups. Instruments used here include performance sheets for assessing the discussion activities. The final Reflection phase involves oral presentations, during which students reflect on their research. The lecturer evaluates both the presentation skills and the quality of the

research articles using specific assessment sheets. These activities are designed to foster deeper engagement, critical thinking, and reflection on the students' research and discussions.

The exploration phase is the initial stage, where students design and conduct field research in groups. The exploration phase serves as a fundamental first step to survey the entire search area. This initial global search is crucial before the algorithms proceed to the more focused exploitation phase, where they refine the search in promising regions to determine the optimal solution (Aiman et al., 2020; Mugemanyi et al., 2023). This activity trains observation skills, problem-solving skills, and the application of the scientific method. The lecturer assesses the activity design and student performance during the exploration using observation and assessment sheets, providing an objective scientific basis for evaluation.

The exploration results are then developed in the interaction and communication phase, where students process data, elaborate conclusions, and collaboratively write a scientific article. The exploration phase initiates a process that culminates in interaction and communication, where students collaboratively process data, formulate conclusions, and present their findings. These phases are integral to developing skills such as critical thinking, scientific literacy, and teamwork (Aiman et al., 2020; Eristya & Aznam, 2019; Rahmawati et al., 2020). In this phase, analytical skills, scientific argumentation, and academic communication are tested through assessments of the quality of discussions and writing.

The reflection phase is a crucial component in which students and educators evaluate actions, processes, and outcomes to inform future improvements. It is the stage for assessing what has been done, understanding its effectiveness, and planning next steps based on these insights. This phase is an integral part of iterative learning cycles, such as those found in collaborative action research (Mutaqin et al., 2021; Rosa et al., 2020). The reflection phase culminates in the activity, where students document their research articles and conduct self-evaluations of the research process. Lecturers assess presentation skills and the quality of the final articles to assess the effectiveness of the learning. This process not only strengthens students' scientific understanding but also fosters metacognitive awareness, scientific attitudes, and sustainable critical thinking skills. Thus, this learning model has proven capable of integrating Theory and practice, equipping students with applicable scientific research and communication skills.

Table 1. Assessment of research article writing assignments

Assessment Aspects	Assessment Categories	Percentage (%) of Students	Error Categories	Percentage (%) Error
Topic Relevance and Originality	Relevant to the topic of lower plant taxonomy	80%	Not relevant	20%
Research Title	The research title reflects the problem and variables	85%	Does not reflect variables	15%
Theories Used	Synthesizing relevant theories	90%	The Theory is less appropriate	10%
Relevant Research	Selecting relevant previous research	88%	Less relevant research	12%
Research methodology	Develop a good methodology	92%	Unsystematic methodology	8%
Data analysis	Analysis process according to the method	87%	Inaccurate analysis	13%
Discussion	Comprehensive discussion	83%	Shallow discussion	17%

Assessment Aspects	Assessment Categories	Percentage (%) of Students	Error Categories	Percentage (%) Error
Conclusion and Suggestions	Conclude the problem formulation	89%	The conclusion is not appropriate	11%
Bibliography	The latest and most up-to-date library	95%	Incomplete library	5%
Writing Format	Meet the requirements	94%	Not in format	6%

The study's results showed that the application of an integrated, research-based learning model of environmental exploration in the Lower Plant Taxonomy course was practical in improving students' research article writing skills. Most students (over 80%) demonstrated excellent performance in almost all aspects, particularly in the preparation of the methodology (92%), the Theory used (90%), and the suitability of the literature (95%). This demonstrates that students can develop a systematic research plan, combine Theory with field practice, and utilise current scientific sources in accordance with academic writing standards. Several studies have demonstrated improvements in scientific writing skills among students, demonstrating a positive impact on their ability to write scientific papers (Sumarmi et al., 2020; Yuliarti et al., 2023).

However, several weaknesses were still identified, including less relevant topics (20%), discussions that remained shallow (17%), and data analysis that was not yet in-depth (13%). This weakness indicates that some students still require guidance in developing critical thinking and argumentative analysis skills, enabling them to interpret research results comprehensively. In conclusion, students continue to struggle with writing research papers for various reasons. This finding is consistent with research that indicates factors contributing to errors include a lack of understanding of the structure and format of academic writing, an inability to develop coherent arguments, and inadequate academic writing training for students to enhance their research paper writing skills (Anah et al., 2025). Strengthening the exploration and group discussion stages is the key to improving these weaknesses.

Overall, these results confirm that integrating field exploration activities with scientific article writing can strengthen the research literacy of prospective biology teacher students. This model encourages the development of scientific attitudes, analytical thinking skills, and academic communication skills. Therefore, research-based learning through environmental exploration is relevant for implementation as an innovative curriculum that focuses on research competency and enhances the quality of biology education graduates. The combination of the Research-Based Learning model and CTP media is effective in developing students' scientific writing skills (Syazali et al., 2025).

The integrated research-based learning model, which explored the surrounding environment in the Lower Plant Taxonomy course, was considered effective in improving students' research and academic abilities; however, there were still obstacles in the technical and conceptual aspects. The lecturer appreciated the students' active involvement in exploration, analysis, and article writing activities, but acknowledged the limited time for guidance as a significant obstacle. Students found the lecturer's advice helpful, but difficulties arose in determining original topics, understanding relevant theories, and conducting in-depth data analysis. This indicates the need for additional support in mastering literature and research time management strategies.

Selecting and determining a topic requires a serious approach to formulating a topic that is appropriate to the research object, the selected variables, the theory used, and the method used to collect and analyse data. Meanwhile, in terms of methodology and

scientific writing, lecturers assessed that most students understood research techniques and writing formats in accordance with academic guidelines. However, some students still need assistance in developing strong arguments and drawing conclusions. Students' difficulties in discussions indicate a lack of academic self-confidence and limited theoretical analysis skills. Based on the results of Rosyida's research, it was stated that several challenges are faced in compiling scientific papers, namely determining the correct title and compiling it according to improved spelling and stable sentence mood (Rosyida et al., 2024). Therefore, intensive academic writing training and methodological guidance are necessary so that students can accurately and logically connect field findings with scientific concepts.

Overall, these results illustrate that research-based learning has a positive impact on students' scientific thinking skills, academic communication, and research literacy abilities. However, its effectiveness can be increased through optimising guidance time, strengthening theoretical literacy, and implementing continuous formative evaluation strategies. With improvements in these aspects, this learning model has the potential to become a comprehensive approach in shaping students as prospective biology educators who are reflective, critical, and research-oriented.

Conclusion

PBR, implemented through three phases (Exploration, Communication and Interaction, and Reflection), has proven effective in improving students' research and scientific writing competencies. High Achievement: Most students (over 80%) achieved excellent results, particularly in the technical and structural aspects of writing, including the preparation of Research Methodology (92%), the application of Theory (90%), and the Appropriateness of the Bibliography (95%). This suggests that students possess a solid understanding of the systematic research process. Critical Obstacles: Significant obstacles still occur in aspects that require argumentative analysis and high-level critical thinking. The main weaknesses identified were shallow Discussion (17% of errors) and Data Analysis that was not sufficiently in-depth (13% of errors). This obstacle is exacerbated by limited guidance time and students' difficulty in determining original and relevant topics.

References

- Aiman, U., Hasyda, S., & Uslan, U. (2020). The influence of process-oriented guided inquiry learning (POGIL) model assisted by realia media to improve scientific literacy and critical thinking skills of primary school students. *European Journal of Educational Research*, 9(4), 1635–1647. <https://doi.org/10.12973/eu-jer.9.4.1635>
- Anah, R., Repelita, T., Sulaeman, D. N., & Ramadhan, L. (2025). Kemampuan menulis karya ilmiah Anah, Tridays Repelita, Dita Natasya Sulaeman, Lexa Ramadhan Universitas Buana Perjuangan Karawang. *Jurnal Ilmiah Wahana Pendidikan*, 11(2), 28–31.
- Cahyana, U., Rahmawati, Y., Paristiowati, M., Sasmoko, S., Ahman, A., Ferdianto, J., & Dudung, A. (2020). Ethnopedagogy integration with mobile learning to improve students' learning achievement in remote areas. *Universal Journal of Educational Research*, 8(5), 1687–1697. <https://doi.org/10.13189/ujer.2020.080505>
- Creswell, J. W. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). SAGE Publications, Inc.
- Eristya, A. M., & Aznam, N. (2019). Natural science learning with modified free inquiry to develop students' creative thinking skills. *Journal of Physics: Conference Series*, 1233(1), 012107. <https://doi.org/10.1088/1742-6596/1233/1/012107>
- Golden, B. (2023). Enabling critical thinking development in higher education through the use of a structured planning tool. *Irish Educational Studies*, 42(4), 949–969. <https://doi.org/10.1080/03323315.2023.2258497>

- Miles, M. B., Huberman, A. M., & Saldana, J. (2014). *Qualitative data analysis: A methods sourcebook* (3rd ed.). Sage Publications Ltd.
- Mugemanyi, S., Qu, Z., Rugema, F. X., Dong, Y., Wang, L., Bananeza, C., Nshimiyimana, A., & Mutabazi, E. (2023). Marine predators algorithm: A comprehensive review. *Machine Learning with Applications*, 12, 100471. <https://doi.org/10.1016/j.mlwa.2023.100471>
- Mutaqin, E. J., Salimi, M., Asyari, L., & Hamdani, N. A. (2021). Realistic mathematics education approach on teaching geometry in primary schools: Collaborative action research. *Journal of Physics: Conference Series*, 1987(1), 012031. <https://doi.org/10.1088/1742-6596/1987/1/012031>
- Nashon, S., & Anderson, D. (2013). Teacher change: The effect of student learning on science teachers' teaching in Kenya. *International Journal of Engineering Education*, 29, 839–845.
- Prayogi, S., Ahzan, S., Indriaturrahmi, Rokhmat, J., & Verawati, N. N. S. P. (2023). Dynamic blend of ethnoscience and inquiry in a digital learning platform (e-learning) for empowering future science educators' critical thinking. *Journal of Education and E-Learning Research*, 10(4), 819–828. <https://doi.org/10.20448/jeelr.v10i4.5233>
- Rahmawati, Y., Ridwan, A., Cahyana, U., & Wuryaningsih, T. (2020). The integration of ethnopedagogy in science learning to improve student engagement and cultural awareness. *Universal Journal of Educational Research*, 8(2), 662–671. <https://doi.org/10.13189/ujer.2020.080239>
- Rosa, F. O., Mundilarto, M., Wilujeng, I., & Mujriah, M. (2020). The integration of collaborative problem solving with "Piil Pesenggiri" local wisdom to build scientific attitudes. *Universal Journal of Educational Research*, 8(11), 5246–5256. <https://doi.org/10.13189/ujer.2020.081125>
- Rosita, L., Sumarmi, S., Astina, I. K., Utaya, S., & Bachri, S. (2025). Enhancing enjoyable learning in geography education through field trips to wetland ecosystems: A mixed-method study. *Educational Process International Journal*, 14(1). <https://doi.org/10.22521/edupij.2025.14.73>
- Rosyida, F. A., Hanifah, K., Latif, M. S., & Abidin, M. (2024). Strategi mahasiswa dalam penyusunan karya tulis ilmiah di Pascasarjana UIN Malang. *Journal of Education Research*, 5(2), 2301–1312. <https://doi.org/10.37985/jer.v5i2.998>
- Sabatini, A., Cucculelli, M., & Gregori, G. L. (2022). Business model innovation and digital technology: The perspective of incumbent Italian small and medium-sized firms. *Entrepreneurial Business and Economics Review*, 10(3), 23–35. <https://doi.org/10.15678/EBER.2022.100302>
- Septiani, D., Syahza, A., & Riadi, R. M. (2023). The effect of financial literacy and peers on consumptive behavior in students of the Economic Education Study Program, University of Riau. *JETISH: Journal of Education Technology, Information Social Sciences and Health*, 2(2), 1635–1641. <https://doi.org/10.57235/jetish.v2i2.782>
- Sumarmi, S., Bachr, S., Baidowi, A., & Aliman, M. (2020). Problem-based service learning's effect on environmental concern and ability to write scientific papers. *International Journal of Instruction*, 13(4), 161–176. <https://doi.org/10.29333/iji.2020.13411a>
- Syahrial, S., Asrial, A., Kurniawan, D. A., Kiska, N. D., & Damayanti, L. (2022). Teaching primary school students through local cultural games for improving positive characters. *International Journal of Instruction*, 15(3), 1047–1078. <https://doi.org/10.29333/iji.2022.15356a>
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- Syazali, M., Widiada, I. K., Rahmatih, A. N., Hasnawati, H., Hayati, I. S., & Elvira, B. O. D. (2025). Assessment keterampilan menulis ilmiah mahasiswa melalui implementasi model pembelajaran berbasis riset berbantuan media contoh, template dan pedoman penulisan makalah. *Jurnal Ilmiah Profesi Pendidikan*, 10(1), 823–831. <https://doi.org/10.29303/jipp.v10i1.3147>
- Utari, R. S., Putri, R. I. I., & Zulkardi. (2024). Designing a hypothetical learning trajectory using the local wisdom of South Sumatera as a context through hybrid learning. *Jurnal Pendidikan Matematika*, 18(1), 79–96. <https://doi.org/10.22342/jpm.v18i1.pp79-96>
- Wulandari, R., Jatmiko, B., Budiyanto, M., Hariyono, E., Lestari, N. A., & Prahani, B. K. (2021). A critical thinking skill profile of science education undergraduate students in basic physics. *Journal of Physics: Conference Series*, 2110(1), 012030. <https://doi.org/10.1088/1742-6596/2110/1/012030>
- Yuliarti, Y., Suwandi, S., Andayani, A., & Sumarwati, S. (2023). Learning model inquiry-based local wisdom dilemmas stories and their effects on critical thinking and scientific writing abilities. *International Journal of Learning, Teaching and Educational Research*, 22(5), 538–557. <https://doi.org/10.26803/ijlter.22.5.27>
- Zahra Aich, F., Boumahdy, L., Benfilali, I., & Sandy, K. (2025). AI usage in academic writing among Moroccan doctoral researchers at Sidi Mohamed Ben Abdellah University. *Arab World English Journal*, 11, 192–209. <https://doi.org/10.24093/awej/call11.12>
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