

ANALYSIS OF DIFFICULTIES AND METACOGNITION ABILITIES OF PRE-SERVICE PRIMARY SCHOOL TEACHERS IN REVIEWING RESEARCH ARTICLES

Arya Setya Nugroho

Universitas Muhammadiyah Gresik

aryasetya@umg.ac.id

Abstract

Pre-service teacher do not understand how to do a good article review, including difficulty finding important elements in an article, difficulty creating relevant questions, or difficulty evaluating research methodology. This actually supports students' cognitive abilities. This study aimed to analyze students' difficulties and metacognitive abilities in reviewing scientific articles. The research method used is descriptive-qualitative, and the data collection techniques used are interviews and assignments. Carried out on 40 PGSD UMG class B students in the Educational Foundations course. Data analysis techniques using a theory-driven thematic approach. The results obtained from metacognitive abilities are 1) developing planning, namely analysis of research objectives in articles, analysis of research methodology, analysis of research results, analysis of conclusions, analysis of bibliography; 2) Monitoring implementation, namely setting schedules and time limits, providing solutions to review difficulties, evaluating the student article review process; 3) evaluate the actions obtained for advantages (critical analysis skills, literacy abilities, insight into research and development) and shortcomings (misunderstanding of the concept of understanding the article, not noting the weaknesses of the article, feedback that is not detailed enough). Students are expected to construct knowledge through learning and provide insight into research and development in education.

Keywords: *metacognitive abilities; reviews; scientific articles; primary school*

Abstrak

Mahasiswa calon guru tidak memahami bagaimana melakukan review artikel yang baik termasuk kesulitan menemukan elemen penting dalam sebuah artikel, kesulitan membuat pertanyaan yang relevan, atau kesulitan mengevaluasi metodologi penelitian. Hal tersebut sebenarnya mendukung kemampuan kognisi mahasiswa. Tujuan penelitian ini untuk menganalisis kesulitan dan kemampuan metakognisi mahasiswa dalam melakukan review artikel ilmiah. Metode penelitian yang digunakan adalah deskriptif kualitatif dengan teknik pengumpulan data yang digunakan adalah wawancara dan penugasan. Dilakukan pada 40 mahasiswa PGSD UMG kelas B di mata kuliah Landasan Pendidikan. Teknik analisis data dengan menggunakan pendekatan tematik theory driven. Hasil yang didapatkan kemampuan metakognisi 1) mengembangkan perencanaan yaitu analisis tujuan penelitian dalam artikel, analisis metodologi penelitian, analisis hasil penelitian, analisis kesimpulan, analisis daftar pustaka; 2) Memonitor pelaksanaan yaitu pengaturan jadwal dan batas waktu, pemberian solusi pada kesulitan review, evaluasi proses review artikel mahasiswa; 3) mengevaluasi tindakan diperoleh kelebihan (keterampilan analisis kritis, kemampuan literasi, wawasan penelitian dan pengembangan) dan kekurangan (kesalahan konsep memahami artikel, tidak mencatat kelemahan artikel, umpan balik yang tidak cukup rinci). Mahasiswa diharapkan mengkonstruksi pengetahuan melalui pembelajaran dan memberikan wawasan penelitian dan pengembangan dalam dunia pendidikan.

Kata Kunci: kemampuan metakognisi; review; artikel ilmiah; sekolah dasar

Received : 2023-08-30

Approved : 2023-10-11

Revised : 2023-10-06

Published : 2023-10-31



Jurnal Cakrawala Pendas is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License.

Introduction

An Education Base is a course about analyzing national education's history, systems, nature, and foundations according to facts, norms, and learning theories. This course is insufficient to be delivered only through discussion and lecture, students must build concepts independently to obtain meaningful understanding. Meaningful understanding can be obtained by learning about new information and relevant concepts (Tarmidzi, 2019). The learning process to support academic activity requires social, cultural, and cognitive psychology (Goudeau et al., 2021). Academic development in a person needs a cognitive (Bandura, 1993).

The study of education, including the foundations of education, inevitably undergoes development. The development requires students to study the latest educational research. The results of government research regarding the Research on Improving System of Education (RISE) program show that the trend of research as input for educational policy for the quality of teaching and learning tends to decline starting in 2020 (Kemdikbud, 2021). The lecture process is very suggested to relate the existing research results with lecture materials where the management of new research studies is associated with materials that have been received. Studies about education are expected to increase students' cognitive understanding about Education Base materials. Students' cognitive understanding will be more developed if it is related to metacognition skills with meaningful learning activities (Ward & Butler, 2019).

Learning understanding affects the meta-cognition process; it covers cognitive processes related to the subject matter that will be studied (Romli, 2012). It also includes students' awareness to engage in behaviors and thought processes that will improve their learning and memory. Therefore, students' thinking activity is highly dependent on metacognition (Billing et al., 2001). According to Krathwol and Anderson, the essential elements in the metacognition aspect can be divided into the following categories: 1) learners' knowledge of general strategies for learning and thinking (strategic knowledge); 2) their knowledge of cognitive tasks as well as when and why to use these different strategies (knowledge of cognitive tasks); 3) the knowledge of the self (human element) concerning the cognitive performance component and motivation (self-knowledge) (Wilson, 2016). Metacognition skills cover three indicators: developing planning, monitoring the implementation, and evaluating actions (Widadah, 2013).

The Education Base requires every student to understand the current condition of the education world. The performance report of the Ministry of Education, Culture, Research, and Technology in 2022 shows that educational services at the higher education level were 98.8% realized, 31.16 of the target figure of 31.52. Increasing the quality of learning based on competency and character, as well as the contribution of universities to research, innovation, and science, by 124%, which was 102,993 of the target of 82,500. Therefore, they are now asked to search for national and international research articles relevant to human relations to education. Students then analyze and review the research article by linking it to previously received material to facilitate and enhance meaningful knowledge for students about the relationship between humans and current education. Students are required to relate new information from research articles with previously received information so that they can build their own concepts. By analyzing scientific articles, students can develop critical reasoning, better understand current conditions, and prepare to become independent learners. The information obtained and related to the task creates more meaningful learning (Nicol, 2021). However, some difficulties in analyzing articles arise from students. A lot of students do not understand how to do a good article review. The problems include finding essential elements in an article, making relevant questions, or evaluating research methodology.

The journal analysis by college students helped them develop metacognitive awareness, which will improve their cognitive learning outcomes. They learn how a theory or science arises, and then it is taught through analyzing research articles. Information acquisition will increase their understanding of the knowledge studied by analyzing an object (Ratheeswari, 2018). Likewise, the Education Base course should not only understand basic theories about educational foundations but also be enriched with new information about educational development through research findings related to academic problems, foundations, and history. In the future, metacognitive abilities will optimally develop from learning based on the analysis of scientific articles. Students who can analyze and review the material consciously in their learning activities will contribute to the success of the received learning process (Wong et al., 2019). In self-learning, cognitive and metacognitive skills are essential. The fundamental components of self-learning are cognition, metacognition, and motivation. Metacognition becomes vital because it allows individuals to plan and allocate limited learning resources as effectively as possible, monitor their knowledge and skills, and assess their learning conditions (Concina, 2019).

Based on the literature review, several facts and data are based on students' abilities in analyzing scientific articles, which are linked to metacognitive abilities. But there are no articles that explicitly demonstrate students' metacognitive abilities or abilities in analyzing scientific articles. Therefore, studies regarding this matter are needed. This article also presents an overview of a learning scheme based on scientific articles to determine metacognitive abilities. Students need to be able to review research articles published in journals to improve their writing skills and review existing research results. Critical thinking, analytical, and accuracy mastery can all be honed through article review. The first-semester students are also required to know some existing research results. Research or literature review is a source of scientific articles, especially those published in journals accredited by SINTA.

Research Methods

The research method used in this study was qualitative descriptive. Subjects in the study were 40 Primary School Teacher Education (*Pendidikan Guru Sekolah Dasar (PGSD)*) students in a B morning class taking the Education Base course. The reason for selecting the first-semester class in the Primary School Teacher Education program was whether students had difficulty reviewing research articles. The subjects chosen were students who attended face-to-face learning. The data collection techniques used were interviews and assignments. The data analysis technique used in this study was a thematic theory-driven approach. It refers to an analysis technique emphasizing the preparation of coding by referring to established research questions so that the themes arranged correspond to the research question and become a reference in exposing the phenomena that occur (Adila & Kurniawan, 2020).

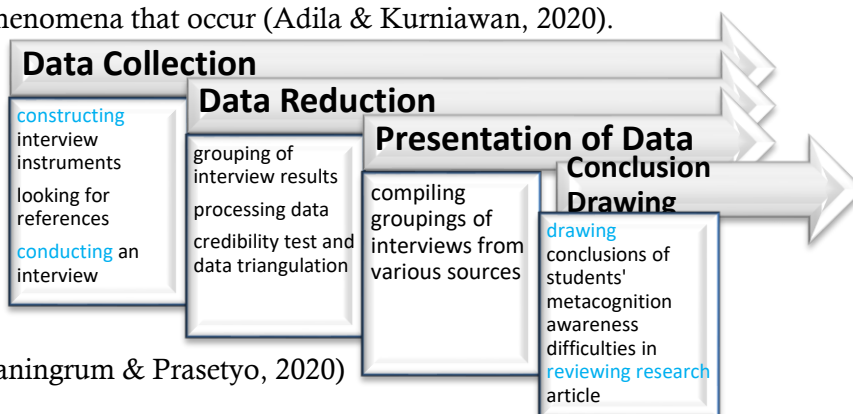


Figure 1. Research steps (Satrianingrum & Prasetyo, 2020)

Figure 1 describes the stages starting from data collection, data reduction, presentation of data, and conclusion drawing in this research to analyze metacognitive abilities in analyzing reviews of scientific articles.

Results and Discussion

The results of the lecture process and the grades of the Education Base course from a B morning class in the 2021 academic year were obtained. Students analyzed 40 articles; 1 student analyzed 1 scientific article. The first stage is developing a plan. Students did scientific article analysis; they usually tried to identify already known information (explicit information in the article) and questions that they may have after reading the article.

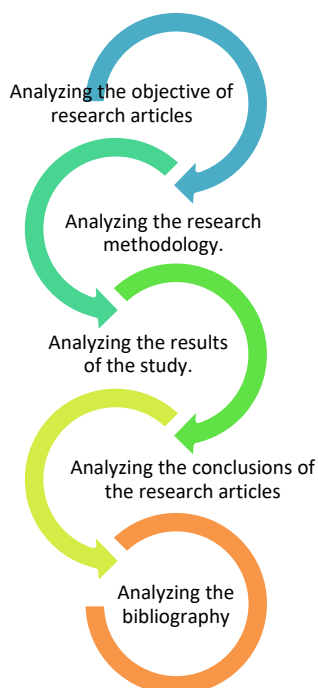


Figure 2. Stages of article analysis

In accordance with Figure 2, the student activities in the process of scientific article analysis are explained as follows:

- 1) Analyzing the objective of research articles
Students searched for and wrote down the research objectives described in the article. Research questions or problems that the researcher wants to solve are also analyzed. The majority of the 40 students had been able to show the objective of the research article analyzed. By knowing the research purpose, researchers know how to design the research needs that will be implemented (Supriyanto et al., 2019).
- 2) Analyzing the research methodology.
Students searched for information about the research method used in the research articles. When it was written on the analysis results, students could find the type of data collected, the analysis techniques used, and the design of experiments in various studies. By knowing the research methods in some studies, students are hoped to be able to know the systematic steps of conducting research according to the objectives (Edwards & Gaber, 2014).

3) Analyzing the results of the study.

Students searched for information about the main results of the research, including essential findings on the study, data collected, and statistical figures corresponding to the study. Research findings give consideration to the identification literature of research opportunities (Remko, 2020). Some research results also facilitate other researchers to conduct follow-up research (Ardoin et al., 2020).

4) Analyzing the conclusions of the research articles.

The research article presents conclusions based on the results of the study. Students searched for and wrote down the conclusions on analysis sheets to understand the essence of what the researcher had discovered. Knowing the conclusions means the readers can compare the study's design and results (Viglia & Dolnicar, 2020). From those conclusions, students know the essence of research analysis (Makridakis et al., 2022).

5) Analyzing the bibliography.

Students wrote down all reference sources used by researchers in the research articles. This activity is helpful in evaluating the basic research and checking related sources. By knowing the referral list, students are expected to be able to analyze or map the related and recent sources for a study (Sharifi, 2021).

By distinguishing between information that is already known and questions that arise, students can conduct a more in-depth analysis of the research articles and develop a better understanding of the research topic.

The next stage is monitoring implementation. In reviewing research articles, each student conducted the process independently. This activity is an essential part of the study in investigating scientific work. In reviewing research articles, students ensured that the steps were carried out properly, efficiently, and in accordance with the established guidelines. The descriptions about monitoring the implementation of reviewing research articles conducted by students are explained as follows:

1. Setting the schedule and deadlines.

Monitoring the implementation of reviewing research articles began by setting a clear schedule and a realistic deadline. The lecturer provided signs about the schedule and deadline for reviewing research articles to ensure that all students must complete the assignment on time. From 40 students, it is proved that they can submit the review timely



2. Providing solutions to difficulties during review. Occasionally, article reviewers and authors experience conflicts or difficulties in the review process. As a lecturer, you must be prepared to deal with these issues wisely, find fair solutions, and keep the review process running. Some students expressed difficulties when reviewing articles through WhatsApp chat.

The use of language/terms is elusive. Do not Understand (NR student quote)

Time is less long (SI student quote)

Statistics on the study are exclusive and in need of further explanation (AP student citation)

From these difficulties, lecturers conduct face-to-face consultations. They provide grating reviews of scientific articles to students and provide constructive feedback by pointing out errors or shortcomings during the review. When difficulties were presented to the lecturer, the educator offered space for exploration of the diagnosis for students to adopt after scientific articles (Barhoumi et al., 2022).

3. Evaluate the review process of student articles. After the review is completed, it is important to evaluate the entire process. It includes checking compliance with the guidelines, the time required, and the quality of the review according to the terms of the article's review.

Monitoring the conduct of a review of scientific articles is key to ensuring. This process is running properly, and the results are reliable. Monitoring and evaluation also reference developing capabilities (Wang et al., 2020). Monitoring the implementation of scientific article reviews is key to ensuring that this process runs well and that the results are reliable. With careful monitoring, any errors or nonconformities with scientific standards can be identified and corrected, improving the overall quality of published scientific articles.

The third stage of this research is evaluating actions. Student evaluation during the article review showed advantages and disadvantages have already been done. Student metacognition skills in reviewing scientific articles may involve several aspects to consider. Here are the shortcomings of students when doing article reviews.

1. Some college students make conceptual mistakes in understanding the article. Students must go in-depth when interpreting arguments and findings in the context of relevant theories in scientific articles.
2. Not all the weaknesses that exist in scientific articles. It was visible when presenting the results of the review. Students note the very obvious weaknesses in the article and skip the more subtle aspects in the scientific article. Students need to improve their ability to detect deep weaknesses.
3. Students provide overly general or insufficiently detailed feedback to the authors of scientific articles. The review grid of a given article also includes the response or feedback students give to the article under review. Here are some student response quotes.

Very well prepared articles, ranging from background to very good

Bibliography (IK student response)

Good. Benefits are also written in this article (K student's response)

Description of results linking with theory and research (AM student's response)

From some of these student quotes, improving the ability to provide specific and structured feedback is necessary. Feedback also impacts learning ability (Chen et al., 2020).

To solve difficulty, it is necessary to integrate metacognition training in the lecture curriculum and motivate students to engage in the process of periodic review scientific articles.

In addition, providing constructive and in-depth feedback to students during the review process can also help them develop better metacognition skills. The implementation of integrative training is expected that students can provide constructive and detailed explanatory skills in studying an article (Bui & Kong, 2019). The third stage of this research is evaluating actions. By carrying out integrative training, it is hoped that students will be able to demonstrate constructive and detailed explanation skills when reviewing an article. In the training, they will be taught deeper analytical skills, the ability to identify weaknesses and strengths in a study, and the ability to summarize and communicate their findings clearly and effectively to others, enabling them to better contribute to learning and discussion. about scientific articles.

In addition to the difficulties/shortcomings obtained by students, there are also some advantages obtained by students in reviewing scientific articles.

1. Acquire critical analysis skills. Reviewing a scientific article involves critically evaluating the methodology, data, findings, and arguments presented. Students will develop critical analysis skills that are invaluable in this process. The review process provides valuable experience on developing necessary essential skills, including critical thinking skills (De Paor & Heravi, 2020).
2. Development of literacy skills. Reviewing scientific articles helps develop literacy skills, such as finding references, understanding relevant sources, and evaluating the reliability of information. Literature review on review articles can contribute to academic research (Alam, 2021).
3. Contributions to the research and development of science. Through reviewing scientific articles, students can contribute to the research and development of science by helping to maintain the quality of scientific publications. Reviewing articles provides insights on research, development, and literature studies (Hwang et al., 2020).

Student answers about excess obtained when reviewing articles, here are some answers to student quotes during interviews.

The article contains problems, problem solutions, research results, conclusions (GI students)

Reading research articles we know the benefits of existing research (KT students)

It is not easy to structure it seems, but if you study, you can definitely start seeing problems until solving the discussion results (SA students)

Reviewing scientific articles benefits researchers and science as a whole. It is a valuable experience that can enrich student learning and development at academic and professional levels. Wealth in interesting and meaningful learning innovations can increase the effectiveness of students' abilities (Guraya & Abdalla, 2020). Interesting and meaningful learning innovations can increase the effectiveness of students' abilities. In this way, students will not only be more involved in the learning process but will also be able to develop critical, creative, and problem-solving skills that are very necessary for facing challenges in the real world. In this way, learning innovations not only provide immediate benefits but also help prepare students for success in their future careers. The article review process obtained good value.

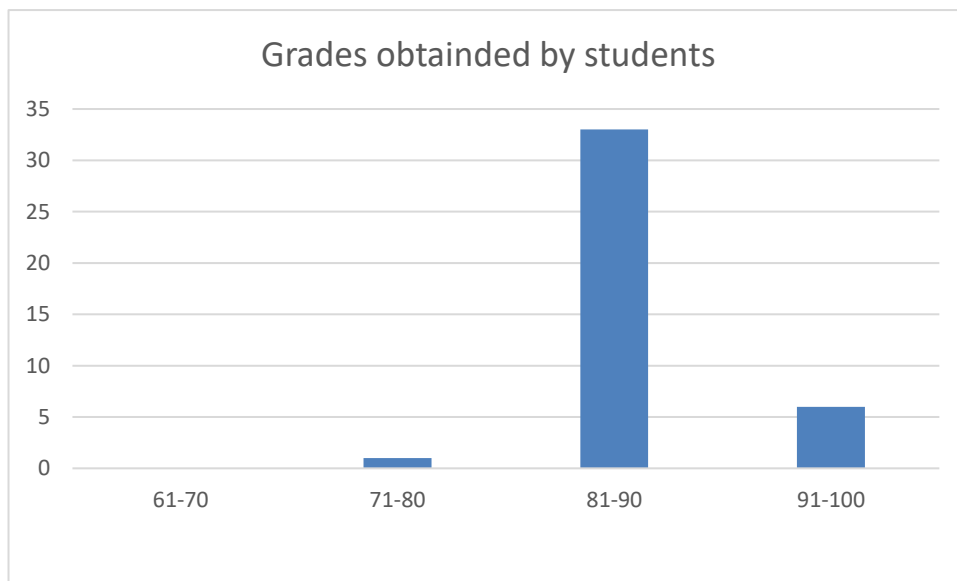


Figure 4. Grades obtained by students

Figure 3 proves that the grades obtained by students are said to be good, with details that received scores of 61-70 for none, 71-80 for as many as one students, 81-90 for as many as 33, and 91-100 as many as six students. The result of the learning process has a lot to do with the meaningfulness of teaching and learning activities provided by educators (Dalzochio et al., 2020).

Based on the data, facts, and analysis of several studies above, article review-based teaching can be formulated. Reviewing scientific articles is an essential skill in higher education, and teaching different ways to conduct reviews can help students better understand research processes, scientific literature, analytical skills, and metacognition skills.

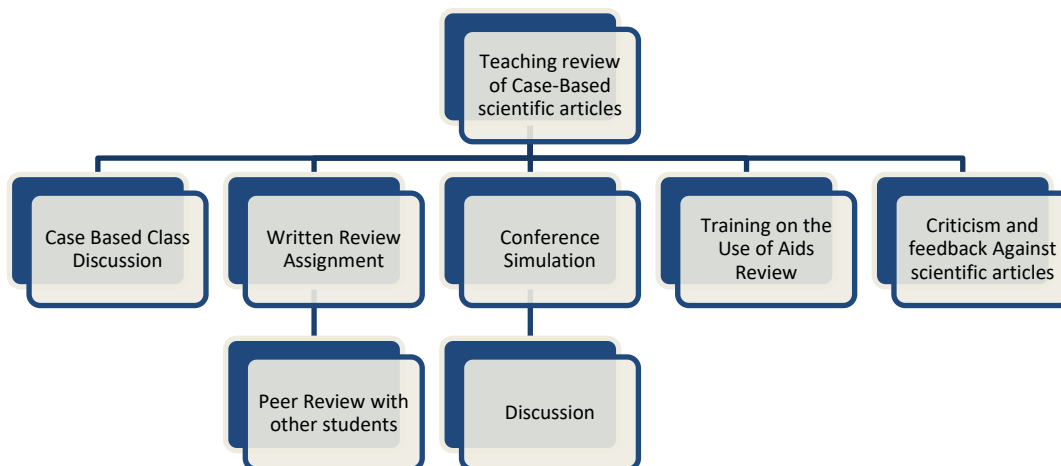


Figure 4. Teaching Review Student Articles

Figure 4 provides an overview of the various approaches that can be used to teach students scientific article reviews. Learning review articles also offer reviews and summaries of prospective primary school teachers in paying attention to current issues related to education

(van der Linden et al., 2022). It is important to remember that analysis of students' metacognition abilities should be conducted holistically and may involve various assessment methods, including observation, interviewing, and testing. This comprehensive approach allows educators to gain a deeper understanding of how students use metacognitive strategies in a variety of learning contexts and situations. With data collected through these various methods, educators can detail students' strengths and weaknesses in the use of metacognition and design appropriate interventions to help them optimally develop these abilities.

The results of this analysis can assist educators in developing appropriate learning strategies to help students develop their better metacognition abilities. The results of this analysis can help educators develop appropriate learning strategies to help students develop better metacognitive abilities. By understanding more deeply how students think and learn, educators can design more focused and customized learning experiences that effectively help students develop their ability to plan, monitor, and evaluate their own learning. This can provide a strong foundation for long-term academic success and empower students to take control over their learning process.

Conclusion

Students' metacognition skills in conducting scientific article analysis, starting from identifying already known information (explicit information) and questions they have after reading the article. Metacognition skills of students in review articles between 1) develop planning, i.e., analysis of research objectives in articles, analysis of research methodology, analysis of research results, analysis of conclusions, analysis of bibliography; 2) Monitoring implementation, i.e., setting schedules and time limits, providing solutions to review difficulties, evaluation of student article review process; 3) evaluate the actions obtained for advantages (critical analysis skills, literacy abilities, insight into research and development) and shortcomings (misunderstanding of the concept of understanding the article, not noting the weaknesses of the article, feedback that is not detailed enough). Teaching students to review scientific articles is an important skill in higher education, and teaching different ways to conduct reviews can help students develop a better understanding of the research process, scientific literature, analytical skills, and metacognitive abilities.

Bibliography

- Adila, D. R., & Kurniawan, A. (2020). Proses Kematangan Emosi Pada Individu Dewasa Awal yang Dibesarkan dengan Pola Asuh Orang Tua Permisif. *INSAN Jurnal Psikologi Dan Kesehatan Mental*, 5(1), 21. <https://doi.org/10.20473/jpkm.v5i12020.21-34>
- Alam, A. (2021). Should Robots Replace Teachers? Mobilisation of AI and Learning Analytics in Education. *2021 7th IEEE International Conference on Advances in Computing, Communication and Control, ICAC3 2021*. <https://doi.org/10.1109/ICAC353642.2021.9697300>
- Ardoin, N. M., Bowers, A. W., & Gaillard, E. (2020). Environmental education outcomes for conservation: A systematic review. *Biological Conservation*, 241. <https://doi.org/10.1016/j.biocon.2019.108224>
- Bandura, A. (1993). Perceived Self-Efficacy in Cognitive Development and Functioning. *Educational Psychologist*, 28(2), 117–148. https://doi.org/10.1207/s15326985ep2802_3
- Barhoumi, C., Alsaysi, A., & Essid, S. (2022). Diagnosis of the effectiveness of the e-learning

- solutions adopted in Saudi higher education during the COVID-19 pandemic. *Online Information Review*. <https://doi.org/10.1108/OIR-02-2021-0078>
- Billing, P. S., Miller, D. L., Allen, M. S., Deschamps, C., Trastek, V. F., & Pairolero, P. C. (2001). Surgical treatment of primary lung cancer with synchronous brain metastases. *Journal of Thoracic and Cardiovascular Surgery*, 122(3). <https://doi.org/10.1067/mtc.2001.116201>
- Bui, G., & Kong, A. (2019). Metacognitive instruction for peer review interaction in L2 writing. *Journal of Writing Research*, 11(2). <https://doi.org/10.17239/jowr-2019.11.02.05>
- Chen, L., Chen, P., & Lin, Z. (2020). Artificial Intelligence in Education: A Review. *IEEE Access*, 8. <https://doi.org/10.1109/ACCESS.2020.2988510>
- Concina, E. (2019). The role of metacognitive skills in music learning and performing: Theoretical features and educational implications. In *Frontiers in Psychology* (Vol. 10, Issue JULY). <https://doi.org/10.3389/fpsyg.2019.01583>
- Dalzochio, J., Kunst, R., Pignaton, E., Binotto, A., Sanyal, S., Favilla, J., & Barbosa, J. (2020). Machine learning and reasoning for predictive maintenance in Industry 4.0: Current status and challenges. In *Computers in Industry* (Vol. 123). <https://doi.org/10.1016/j.compind.2020.103298>
- De Paor, S., & Heravi, B. (2020). Information literacy and fake news: How the field of librarianship can help combat the epidemic of fake news. *Journal of Academic Librarianship*, 46(5). <https://doi.org/10.1016/j.acalib.2020.102218>
- Edwards, K. J., & Gaber, M. M. (2014). Research Methodology. In *Studies in Big Data* (Vol. 6). https://doi.org/10.1007/978-3-319-06599-1_5
- Goudeau, S., Sanrey, C., Stanczak, A., Manstead, A., & Darnon, C. (2021). Why lockdown and distance learning during the COVID-19 pandemic are likely to increase the social class achievement gap. In *Nature Human Behaviour* (Vol. 5, Issue 10). <https://doi.org/10.1038/s41562-021-01212-7>
- Guraya, S. Y., & Abdalla, M. E. (2020). Determining the effectiveness of peer-assisted learning in medical education: A systematic review and meta-analysis. In *Journal of Taibah University Medical Sciences* (Vol. 15, Issue 3). <https://doi.org/10.1016/j.jtummed.2020.05.002>
- Hwang, G. J., Xie, H., Wah, B. W., & Gašević, D. (2020). Vision, challenges, roles and research issues of Artificial Intelligence in Education. In *Computers and Education: Artificial Intelligence* (Vol. 1). <https://doi.org/10.1016/j.caeai.2020.100001>
- Kemdikbud. (2021). *Hasil Penelitian Ungkap Faktor Penting dalam Meraih Capaian Belajar Optimal*. <https://www.kemdikbud.go.id/main/blog/2021/07/hasil-penelitian-ungkap-faktor-penting-dalam-meraih-capaian-belajar-optimal>
- Makridakis, S., Spiliotis, E., & Assimakopoulos, V. (2022). M5 accuracy competition: Results, findings, and conclusions. *International Journal of Forecasting*, 38(4). <https://doi.org/10.1016/j.ijforecast.2021.11.013>
- Nicol, D. (2021). The power of internal feedback: exploiting natural comparison processes. *Assessment and Evaluation in Higher Education*, 46(5).

<https://doi.org/10.1080/02602938.2020.1823314>

- Ratheeswari, K. (2018). Information Communication Technology in Education. *Journal of Applied and Advanced Research*. <https://doi.org/10.21839/jaar.2018.v3is1.169>
- Remko, van H. (2020). Research opportunities for a more resilient post-COVID-19 supply chain – closing the gap between research findings and industry practice. *International Journal of Operations and Production Management*, 40(4). <https://doi.org/10.1108/IJOPM-03-2020-0165>
- Romli, M. (2012). Strategi Membangun Metakognisi Siswa SMA dalam Pemecahan Masalah Matematika. *Aksioma*, 1(2).
- Satrianingrum, A. P., & Prasetyo, I. (2020). Persepsi Guru Dampak Pandemi Covid-19 terhadap Pelaksanaan Pembelajaran Daring di PAUD. *Jurnal Obsesi : Jurnal Pendidikan Anak Usia Dini*, 5(1). <https://doi.org/10.31004/obsesi.v5i1.574>
- Sharifi, A. (2021). Co-benefits and synergies between urban climate change mitigation and adaptation measures: A literature review. In *Science of the Total Environment* (Vol. 750). <https://doi.org/10.1016/j.scitotenv.2020.141642>
- Supriyanto, A., Hartini, S., Syamsudin, S., & Sutoyo, A. (2019). Indicators of professional competencies in research of Guidance and Counseling Teachers. *Counsellia: Jurnal Bimbingan Dan Konseling*, 9(1). <https://doi.org/10.25273/counsellia.v9i1.3927>
- Tarmidzi, T. (2019). Belajar Bermakna (Meaningful Learning) Ausubel Menggunakan Model Pembelajaran dan Evaluasi Peta Konsep (Concept Mapping) untuk Meningkatkan Kemampuan Pemahaman Konsep Mahasiswa Calon Guru Sekolah Dasar pada Mata Kuliah Konsep Dasar IPA. *Caruban: Jurnal Ilmiah Ilmu Pendidikan Dasar*, 1(2). <https://doi.org/10.33603/cjiipd.v1i2.2504>
- van der Linden, S., van der Meij, J., & McKenney, S. (2022). Teacher Video Coaching, From Design Features to Student Impacts: A Systematic Literature Review. *Review of Educational Research*, 92(1). <https://doi.org/10.3102/00346543211046984>
- Viglia, G., & Dolnicar, S. (2020). A review of experiments in tourism and hospitality. *Annals of Tourism Research*, 80. <https://doi.org/10.1016/j.annals.2020.102858>
- Wang, B., Hu, S. J., Sun, L., & Freiheit, T. (2020). Intelligent welding system technologies: State-of-the-art review and perspectives. In *Journal of Manufacturing Systems* (Vol. 56). <https://doi.org/10.1016/j.jmsy.2020.06.020>
- Ward, R. T., & Butler, D. L. (2019). An Investigation of Metacognitive Awareness and Academic Performance in College Freshmen. *Education*, 3(January 2020).
- Widadah, S. (2013). Profil Metakognisi Siswa Dalam Menyelesaikan Soal Sistem Persamaan Linear Dua Variabel Berdasarkan Gaya Kognitif. *Jurnal Pendidikan Matematika STKIP PGRI Sidoarjo*, 1(1), 13–24.
- Wilson, L. O. (2016). Anderson and Krathwohl Bloom's Taxonomy Revised Understanding the New Version of Bloom's Taxonomy. *The Second Principle*.
- Wong, J., Baars, M., Davis, D., Van Der Zee, T., Houben, G. J., & Paas, F. (2019). Supporting

Self-Regulated Learning in Online Learning Environments and MOOCs: A Systematic Review. *International Journal of Human-Computer Interaction*, 35(4–5).
<https://doi.org/10.1080/10447318.2018.1543084>