



Journal of Educational Sciences

Journal homepage: <https://jes.ejournal.unri.ac.id/index.php/JES>



P-ISSN
2581-1657

E-ISSN
2581-2203

Cultivating Interpretation Skills in IPAS Learning at Madrasah Ibtidaiyah

Yasinta Ainur Rohmah*, Sutama

Faculty of Teacher Training and Education, Universitas Muhammadiyah Surakarta, Sukoharjo, 57169, Indonesia

ARTICLE INFO

Article history:

Received: 22 Nov 2025

Revised: 19 Des 2025

Accepted: 24 Des 2025

Published online: 05 Jan 2026

Keywords:

Categorization,
Clarifying Meaning,
Decoding Significance,
Interpretation

* Corresponding author:

E-mail: a510220203@student.ums.ac.id

Article Doi:

<https://doi.org/10.31258/jes.10.1.p.820-835>

This is an open access article under the [CC BY-
SA](https://creativecommons.org/licenses/by-nc-sa/4.0/) license.



ABSTRACT

Interpretation important to help students understand the meaning behind information. With this ability, students can assess, interpret, and connect concepts more deeply. this research aims to describe the cultivation of categorization in IPAS learning at Madrasah Ibtidaiyah, to describe the cultivation of decoding significance in IPAS learning at Madrasah Ibtidaiyah, to explore the cultivation of clarifying meaning in IPAS learning at Madrasah Ibtidaiyah. Type of research: qualitative-ethnographic. Data collection: observation, interviews, and document analysis. Data validity through triangulation of sources and methods. Interactive data analysis. The results of the study indicate that cultivating categorization through strategies, stimuli, and feedback effectively trains students group information, although some are still passive due to differences in experience and motivation. Cultivating the decoding significance with trigger questions, problems, and environmental and inquiry approaches helps students explain concepts in their own words, although some still rely on memorization and need reinforcement through discussion. Cultivating the clarifying of meaning through open questions, re-explanations, and feedback increases student participation, although the skills of comparing information and distinguishing facts from opinions still need to be improved. The cultivation of interpretation in IPAS learning at Madrasah Ibtidaiyah has been implemented and proven to improve student understanding and participation.

1. Introduction

Critical thinking skills are essential skills that must be instilled from elementary school onwards. Critical thinking is an advanced cognitive skill that involves analyzing and evaluating concepts to improve the quality of thinking for specific purposes (Musoffa et al., 2025). Learning that encourages students to think critically is very important to prepare them for the demands of 21st-century competencies (Ngatminiati et al., 2024). Critical thinking encompasses six key

skills: interpretation, analysis, inference, evaluation, explanation, and self-regulation (Facione, 2015). This study focuses on the aspect of interpretation. The aspect of interpretation was chosen because it forms the basis for students to understand the meaning of information in depth before conducting further analysis and reasoning.

Interpretation skills are important in helping students understand the meaning behind information. Interpretation skills refer to the extent to which students can receive, absorb, and understand the learning material presented by teachers (Ambarita et al., 2021; Saputra, 2022). Interpretation skills in learning play a significant role in improving critical thinking skills so that they can be applied in real life to deal with various problems (Yanti et al., 2025). The development of interpretation skills needs to be a focus in the learning process so that students not only understand the material conceptually but are also able to apply it in their daily lives.

The reality at the research site shows that based on data analysis and interviews at MI Muhammadiyah Gedongrejo, many students still tend to answer questions by rote without deep reasoning. This shows that students' interpretive abilities in understanding the meaning of information have not developed optimally, making it difficult for them to connect knowledge with real contexts in learning (Bukhari et al., 2023). In addition, teachers still rarely provide stimuli in the form of open-ended questions and reflective discussions. This causes students to be passive in exploring ideas and find it difficult to express their opinions based on their own understanding (Ahmad et al., 2024). This condition indicates that the learning process does not fully encourage students to think critically and construct their understanding independently.

The root causes of these problems can originate from teachers, students, and the environment. The root causes originating from teachers are teacher-centered learning and a focus on cognitive achievement, which leaves little room for students to discuss (Simin et al., 2025). The root causes originating from students include low motivation to learn, a habit of memorizing without understanding the meaning, and limited experience in relating concepts to real-life situations, which also contribute to the hindrance of interpretation skills (Annisa, 2023; Repu et al., 2025). The root causes originating from the school environment, lack of learning support facilities, and minimal culture of discussion among students make the learning atmosphere tend to be passive (Akbar et al., 2024; Ruslandi et al., 2025). Collaborative efforts between teachers, students, and the school environment are needed to create active, reflective learning that can optimally foster interpretation skills.

Research on interpretation has been conducted in several countries. Previous research on interpretation has been conducted in Denmark, Germany, and Estonia, which concluded that 1) interpretation in elementary schools is realized through the process of drama. 2) Teachers play a role in developing students' scientific interpretation skills. 3) Science inquiry test instruments can assess interpretation skills (Agustian, 2025; Heiden & Rørbech, 2024; Pedaste et al., 2021). This

research differs from previous studies in that it does not only examine interpretation measurement strategies or instruments but focuses more on the process of cultivating interpretation comprehensively in science and mathematics learning in Islamic elementary schools. The novelty of this research is that it examines how teachers can instill interpretation skills, including categorization, meaning analysis, and meaning clarification, through stimuli in the form of texts, images, tables, and natural and social phenomena.

Based on the above description, an alternative solution that can be offered is the cultivation of interpretation in IPAS learning at Madrasah Ibtidaiyah. In cultivating interpretation, teachers can apply guided inquiry-based learning that allows students to learn to actively utilize various learning resources and be involved in the learning process through the provision of stimuli in the form of open questions, texts, images, tables, and natural and social phenomena (Ardellea & Hamdu, 2022; Kurniawati, 2021). The development of teaching materials based on local phenomena is important so that students can combine their knowledge and experiences to solve problems and gain knowledge about their surroundings (Meilana & Aslam, 2022). Learning also needs to support a culture of questioning and discussion, so that students become accustomed to expressing opinions, interpreting information, and thinking reflectively (Iskandar et al., 2024). With the application of these strategies, IPAS learning in Madrasah Ibtidaiyah can be an effective means of cultivating student interpretation.

There are three objectives of the research in this article. 1) To describe the cultivation of categorization in IPAS learning at Madrasah Ibtidaiyah. 2) To describe the cultivation of decoding significance in IPAS learning at Madrasah Ibtidaiyah. 3) To explore the cultivation of clarifying meaning in IPAS learning at Madrasah Ibtidaiyah.

2. Methodology

The type of research in this study is qualitative. Qualitative research is descriptive in nature and tends to use analysis (Safrudin et al., 2023). Through a qualitative approach, researchers can explore the thoughts, experiences, and views of teachers and students more comprehensively regarding how interpretation can be instilled in learning activities. In addition, this study emphasizes the processes, contexts, and interactions that occur naturally in the madrasah environment. This research design uses ethnography. Ethnographic research is related to the discovery and description of the culture of a group or groups of individuals (Mahendra et al., 2024). Because the research was conducted in Madrasahs, this study examined the school community regarding the cultural interpretation applied during learning. For this reason, this design was used to describe the cultural interpretation in IPAS learning in Madrasah Ibtidaiyah.

Research site at MI Muhammadiyah Gedongrejo. Located in Gedongrejo Village, Giriwoyo District, Wonogiri Regency. This school was chosen because of its strategic location, which is close to the Pidekso Dam, providing real environmental

potential that can be used as a source of contextual learning in IPAS learning. The research was conducted over a period of six months during the odd semester of the 2025/2026 academic year. One month was spent on planning, three months on conducting the research, and two months on reporting. The research subjects included the principal, IPAS teachers, and fifth-grade students at MI Muhammadiyah Gedongrejo Giriwoyo Wonogiri.

Data collection techniques in this study included interviews, observation, and document analysis. Interviews were conducted with the principal, science teachers, and fifth-grade students to obtain direct field facts. Observations were conducted by observing the subject's behavior and the situation where the incident occurred, while document analysis was conducted by reviewing various relevant documents (Rifa'i, 2023). Data validity was tested through triangulation of sources and methods by comparing information from various informants and data collection techniques to ensure consistency and accuracy (Alfansyur & Mariyani, 2020). Data analysis used the Miles and Huberman interactive model, which includes data reduction, data presentation, and conclusion drawing; this process is carried out continuously from the data collection with the aim of understanding the meaning of the data obtained (Qomaruddin & Sa'diyah, 2024).

3. Results and Discussion

The cultivation of interpretation in IPAS learning has been carried out at MI Muhammadiyah Gedongrejo, specifically in grade V, which has 18 students, consisting of nine male students and nine female students. Student interaction during learning was quite active, especially during discussion activities. However, some students still seemed shy to ask questions or respond to their friends' opinions, so the role of the teacher in encouraging participation was very important. In general, the academic abilities of the students were heterogeneous; some students were able to understand concepts quickly, while others needed additional explanations and guidance. The classroom was also equipped with various facilities that supported learning activities, such as a blackboard, simple visual media, and several other supporting media used to help students understand IPAS material.

The IPAS learning process carried out by teachers tends to combine lecture methods, question and answer sessions, and simple observations of objects or images. Although these methods help students understand basic concepts, their application does not consistently emphasize in-depth interpretation skills. Based on these conditions, the cultivation of interpretation is important to be applied so that students are more focused in building understanding while being trained to use critical thinking skills in IPAS learning. Through the cultivation of interpretation, teachers are expected to be able to create learning activities that enable students to categorize information, decoding significance, and clarify meanings. This effort also increases student participation in discussions and encourages students to think critically in a more structured manner.

The research was focused on direct observation of the IPAS learning process to obtain a real picture of the application of interpretation culture in the classroom. During the research, learning was carried out directly in the classroom through two observations of IPAS learning that focused on teacher and student activities. The teacher delivered the material according to the lesson plan, while the researcher recorded various student responses, teacher strategies, and moments that showed the interpretation process. Data collection was carried out through observation, interviews, analysis of documents supporting learning activities, documentation in the form of photos of learning activities, and field notes. All data were analyzed to see how the culture of interpretation was applied, the extent of student participation, and the supporting and inhibiting factors during the learning process. This study specifically examines three main aspects of the cultivation of interpretation, namely categorization, decoding significance, and clarifying meaning.

The cultivation of categorization in IPAS learning at Madrasah Ibtidaiyah

The cultivation of categorization is important in IPAS learning to train interpretation skills. The cultivation of categorization has been implemented at MI Muhammadiyah Gedongrejo, according to interviews with the principal and teachers, where teachers familiarize students with grouping information through various learning strategies, such as using visual media, providing real-world examples, and providing feedback exercises so students can explain the reasoning behind their answers, as shown in Table 1. Students are encouraged to group data based on characteristics. Direct grouping activities improve students' conceptual understanding compared to reading or producing examples on their (Steininger et al., 2022). Cultivating meaningful categorization is a process of building an orderly and directed knowledge structure, so that students are not only able to understand and interpret information more clearly and deeply.

Table 1. Types of Categorization and Their Implementation

Forms of categorization culture	Explanation
Implementation of various learning strategies	<ul style="list-style-type: none"> • The teacher uses visual aids in the form of a food chain diorama to facilitate the explanation of the material. • The teacher provides exercises after the teacher explains the material. • The teacher provides examples related to the students' lives.
Providing stimulus	The teacher provides stimulus in the form of real examples from the surrounding environment
Feedback	The teacher provides feedback in the form of "why" questions so that students can explain the reasons behind their answers.

The right learning strategy can support students categorization habits by encouraging them to identify relevant categories. Interviews with student-supported teachers show that categorization habits are developed gradually, starting with real-life examples, use of visual media in the form of food chain dioramas as shown in Figure 1, and question and answer sessions. In addition, teachers provide exercises

and game activities, such as grouping the roles of living things in an ecosystem, or guessing whether a picture includes a producer, consumer, or decomposer. Student-centered learning is characterized by the ability to vary learning activities using various appropriate strategies depending on the student's situation (Barokah et al., 2024). The habit of categorization through varied learning strategies encourages students to identify relevant categories so that the learning process is more meaningful and supports their interpretation skills.



Figure 1. Visual Media Food Chain Diorama

Stimulus are important for training students' ability to categorize information according to characteristics. Interviews with teachers, supported by observations, showed that in teaching ecosystem material, teachers provided stimuli in the form of real examples from the surrounding environment to categorize the roles of living things as producers, consumers, and decomposers. Students were then directed to categorize according to the characteristics or features of each category so that they could determine the role of each living thing. The use of relevant concrete examples helped students develop a conceptual understanding of the material (Syafawani & Utami, 2025). Grouping based on characteristics builds understanding of categories and classification (Nazidah et al., 2023). Stimulus in the form of relevant concrete examples help students group information based on characteristics or traits, enabling them to distinguish each category more accurately.

Providing feedback by encouraging students to explain the basis for grouping supports the effectiveness of categorization activities. During observation, students were seen to be able to explain the basis for grouping information after the teacher provided feedback in the form of "why" questions to elicit students' reasoning, accompanied by examples of categorization relevant to their daily lives. Classification accompanied by feedback can help students master complex concepts rather than just observing them (Corral & Carpenter, 2024). Classifying examples is more effective in helping students understand relational categories than simply reading or making examples themselves (Steininger et al., 2022). The application of contextual and interactive feedback encourages students to be able to explain the basis for grouping, thus becoming a strategic step to strengthen students' understanding of categorization.

Student participation in categorization shows differences in levels of understanding, particularly in distinguishing elements within a category. According to the results of observations supported by teachers' opinions, during learning, some students appeared enthusiastic in answering questions and actively grouping information, while others were still confused and less participatory. This shows that there are differences in students' abilities to group information and distinguish elements within a category. Students who actively group information show a higher level of engagement than passive students (Mahmood et al., 2024). Student activity in grouping information reflects their level of understanding and engagement in learning, including their ability to distinguish elements within a category.

The cultivation of decoding significance in IPAS learning at Madrasah Ibtidaiyah

The cultivation of decoding significance is important for training students deep understanding in IPAS learning. The cultivation of decoding significance has been implemented at MI Muhammadiyah Gedongrejo through various learning activities. According to the results of interviews with the principal, supported by teacher, various strategies such as using environmental and inquiry-based approaches, asking provoking questions, problem-based learning, and discussions, although not yet optimal, as shown in Table 2. However, there is still a gap in students' ability to interpret meaning using their own language. Students need to be given the opportunity to use their own language to express meaning more effectively (León et al., 2024). The cultivation of meaning interpretation helps students understand concepts in depth through the purposeful and reflective use of their own language.

Table 2. Types of Decoding Significance and Their Implementation

Forms of Decoding Significance Culture	Explanation
The appropriate approach	Teachers use an environment-based and inquiry-based approach that encourages students to observe phenomena directly.
Asking a provocative question	Giving provocative questions related to surrounding events
Problem-based questions	The teacher asks problem-based questions using visual media
Discussion activities	Teachers have not fully provided students with opportunities for collaborative discussions or group work.

An environment-based and inquiry-based approach helps students analyze meaning and relate it to context. Interviews with teachers, supported by observations, show that during lessons, students are encouraged to reflect on previous observations, to discuss their findings and draw conclusions. Teachers ask questions such as, "When you see a river full of trash, how do you think it affects the ecosystem?" These questions encourage students to relate real experiences to the concept of ecosystems. Environment-based learning provides students with direct experiences to observe and interact with natural phenomena (Asfiana et al., 2025). Guided inquiry learning emphasizes activities and provides direct learning experiences to

students (Eryani et al., 2021). The application of environment-based and inquiry-based learning is an effective means of explaining meaning and linking it to real-world contexts

Provocative questions encourage students to explain the meaning of information in their own words. Interviews with teachers supported by observations show that during lessons, teachers ask questions related to the surrounding environment, such as “Have you ever seen a snake prey on a mouse in a rice field?” These questions encourage students to explain the relationship between snakes, mice, and rice in the food chain in their own words. Contextually designed prompting questions can improve critical thinking skills and make students actively construct the meaning of learning (Alawiah et al., 2024). Prompting questions play a strategic role in guiding students to interpret and elaborate meaning in depth using their own language.

Problem-based questions encourage students to explain the implications or impacts of a phenomenon. Observations of classroom learning activities show that teachers often ask problem-based questions. Teachers use modules that contain illustrations of ecosystems as shown in Figure 2, such as pictures of rice fields, snakes, mice, and rice. Based on these modules, teachers ask questions such as, “What happens if the snake population in the rice fields decreases?” These questions encourage students to interpret the relationships between organisms and understand the balance of ecosystems. Problem-based learning is effective in training and honing students' critical thinking skills through active engagement and responsibility (Sucipta et al., 2023). Problem-based questions encourage students to explain the impact of a phenomenon and train their interpretation skills.

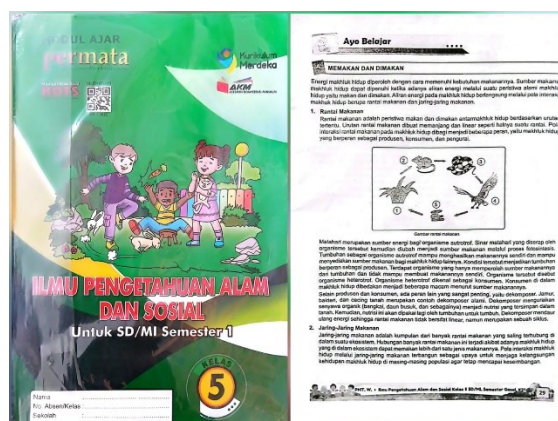


Figure 2. IPAS Learning Module

Discussion activities help students analyze core meanings by encouraging them to exchange opinions, interpret information, and build a shared understanding. However, observations supported by interviews with teachers show that teachers have not fully provided opportunities for discussion or group work to interpret information. In fact, collaborative discussion activities are very important for training students to exchange ideas, clarify understanding, and build shared

knowledge. Discussion encourages the exchange of experiences and information, so that each student can actively participate in the learning process (Maisarah et al., 2025). Discussion activities are an important means of learning to foster students' ability to analyze core meanings through interaction, collaboration, and joint reflection.

The gap in students' ability to interpret meaning and explain meaning logically reflects differences in conceptual understanding. During observation, it was found that some students were able to explain the meaning of the material using their own words. However, there were still students who only repeated the definitions from the book, and some were unable to explain without rereading. These findings indicate a gap in students' ability to interpret meaning. The ability to explain back in one's own words is an indicator of conceptual understanding that is often related to the quality of teaching and learning activities that encourage elaboration (Oktavia et al., 2022). The techniques of self-explanation and explaining to others strengthen conceptual understanding better than simply repeating what has been read (Nakamoto et al., 2023). Teachers need to integrate learning strategies that facilitate elaboration to bridge the understanding gap and help students explain meaning logica

The cultivation of clarifying meaning in IPAS learning at Madrasah Ibtidaiyah

The cultivation of clarifying meaning is important for fostering curiosity and the ability to verify the concepts being studied. The culture of clarifying meaning has been implemented at MI Muhammadiyah Gedongrejo. Interviews with the principal, supported by teachers, show that the culture of clarifying meaning is carried out through various activities, such as providing an open question and answer space, giving feedback in the form of re-explanations, providing relevant examples, and guiding students to re-examine their understanding of the concepts being studied, as shown in Table 3. The ability to clarify is an important and fundamental aspect of critical thinking because clarification helps humans communicate their thoughts, beliefs, and reasons (Arwan et al., 2023). Elementary clarification has a significant influence on their ability to understand concepts in depth, especially when supported by appropriate learning methods (Kumala et al., 2022). Clarifying meaning not only strengthens conceptual understanding but also shapes logical and reflective thinking in the learning process.

Table 3. Types of Clarification Meaning and Their Implementation

Forms of Clarifying Meaning Culture	Explanation
Question-and-answer session	The teacher provides an open question and answer space after explaining the material so that students can clarify their understanding.
Providing feedback	The feedback provided by the teacher is in the form of re-explaining material that students do not understand.
Giving examples	The teacher provides examples using analogies from everyday life or real examples that are relevant to students' lives.

Information comparison	Teachers have not fully encouraged students to compare facts with opinions, or to connect the causes and effects of a phenomenon.
------------------------	---

Open question and answer sessions facilitate students in clarifying the meaning of ambiguous terms or concepts that are not yet understood. The results of teacher interviews supported by students show that in classroom learning, teachers provide open question and answer sessions after explaining the material. Students who experience difficulties are given the opportunity to ask questions, then the teacher explains again in simpler language or through relevant concrete examples. Through the question and answer method, students are encouraged to be more courageous in expressing their opinions and asking questions about things they do not understand (Arlistiani et al., 2025). The questions and answer method provides an opportunity for teachers to find out students' understanding while providing space for explaining meaning that supports two-way interaction and strengthens students interpretation skills.

Providing feedback in the form of explanations encourages students to clarify and restate the meaning of concepts that they do not yet understand. Interviews with teachers supported by students showed that during classroom learning, teachers provided explanations through different approaches. For example, in teaching about food chains, teachers explain the relationship between rice, mice, snakes, and eagles using examples that relate to students' experiences. To clarify the explanation, teachers draw the food chain on the blackboard so that students can more easily understand the ecosystem, as shown in Figure 3. The importance of re-explanation strategies and the use of interactive media to reduce student misconceptions (Rahma et al., 2025). Providing feedback with re-explanations and the use of appropriate media helps the process of clarifying meaning, thereby overcoming misconceptions and deepening understanding of learning concepts.



Figure 3. Review Activities

Providing examples helps students clarify meaning by making abstract concepts more tangible and easier to understand. Interviews with teachers supported by students show that teachers usually use analogies from everyday life or relevant real-life examples so that the meaning of each material can be understood. Analogies enable teachers to construct new definitions or concepts that are difficult

to understand by relating them to knowledge that students are already familiar with (Kurniawan, 2023). The use of contextual and relevant examples helps students understand the practical application of the concepts being studied (Wijaya et al., 2025). Providing contextual examples and analogies helps students clarify the meaning of concepts by connecting the material to real experiences, thereby deepening their understanding.

Comparing information can verify students' understanding by assessing similarities and differences, so that they can ensure that the concepts learned are truly understood. The results of observations supported by interviews with teachers show that IPAS learning at MI Muhammadiyah Gedongrejo teachers have not fully encouraged students to compare facts with opinions, or to connect the causes and effects of a phenomenon. Students critical thinking skills improve when they are trained to compare information through the use of different media (Agviolita et al., 2022). The comparison of information needs to be optimized so that students not only understand a single meaning but are also able to see the connections between pieces of information to build a deeper and more critical understanding.

The gap in clarifying meaning arises because of students' low confidence in asking questions. During observation, it was found that there were students who did not understand the concept or material, but did not dare to ask the teacher because they were unsure, afraid of being wrong, or lacked confidence in expressing their opinions. Students who have high self-confidence tend to be more courageous in asking questions, expressing opinions, and actively participating in the learning process (Zulaikha & Huriyah, 2025). Self-confidence is very necessary for students when learning, so that they can be motivated to achieve learning success (Suttrisno, 2021). Self-confidence plays an important role in encouraging students to clarify meaning, so that they can participate actively and understand learning concepts more deeply.

4. Conclusion

The cultivation of categorization in IPAS learning at MI Muhammadiyah Gedongrejo plays an important role in shaping students' interpretive and conceptual understanding abilities. This process not only trains students' skills in grouping information, but also fosters systematic thinking through various active learning strategies, the use of contextual stimuli, and visual media support that facilitates conceptual understanding. In addition, providing appropriate and interactive feedback strengthens students' ability to distinguish and logically connect information. Thus, the cultivation of categorization is one effective approach in fostering students' ability to interpret in science and social concepts.

The cultivation of decoding significance in IPAS learning at MI Muhammadiyah Gedongrejo plays an important role in forming deep conceptual understanding. This process emphasizes active student involvement through an environment-based approach, inquiry, provoking questions, and discussion activities that encourage students to interpret information in their own language. Although there are still

differences in the ability to interpret meaning, the application of learning strategies that emphasize elaboration, reflection, and the use of real contexts has proven effective in improving students' interpretation skills. Thus, the cultivation of decoding significance is a strategic step in building a deep and meaningful conceptual understanding for students.

The cultivation of clarifying meaning in IPAS learning at MI Muhammadiyah Gedongrejo plays an important role in fostering curiosity and the ability to verify the concepts being studied. Through open question and answer sessions, contextual feedback, and information comparison activities, students are trained to analyze, evaluate, and clarify their understanding independently and collaboratively. This process helps students build a deeper, more logical, and reflective conceptual understanding, while avoiding misconceptions. Thus, the cultivation of clarifying meaning is an effective strategy in strengthening students scientific interpretation and understanding in science and social learning.

Acknowledgement

I would like to express my gratitude to all parties who have supported this research activity. I would like to express my gratitude to the Rector of Universitas Muhammadiyah Surakarta and his staff who have assisted in providing resources for this research. I would like to express my gratitude to the Dean of the Faculty of Teacher Training and Education and the Head of the Elementary School Teacher Education Study Program of Universitas Muhammadiyah Surakarta and their staff, who have provided facilities and encouragement so that I can conduct this research. I would like to express my gratitude to my supervisor and all the Elementary School Teacher Education lecturers of Universitas Muhammadiyah Surakarta, who have guided and directed me so that I can complete this research perfectly. I would also like to express my gratitude to the Head of the Education Office, the principal, the IPAS teachers, and the students of Madrasah Ibtidaiyah Muhammadiyah Gedongrejo Giriwoyo Wonogiri, Central Java, who have helped the research process so that it runs according to plan.

References

- Agustian, H. Y. (2025). The Critical Role of Understanding Epistemic Practices in Science Teaching Using Wicked Problems. *Science and Education*, 34(1), 485–510. <https://doi.org/10.1007/s11191-023-00471-2>
- Agviolita, P., Sudarti, S., & Rif'Ati Dina Handayani. (2022). Analisis Komparasi Keterampilan Berpikir Kritis Siswa pada Pembelajaran IPA dengan Media Buku Ajar dan Media PhET Simulation. *Jurnal Pendidikan Mipa*, 12(2), 241–246. <https://doi.org/10.37630/jpm.v12i2.573>
- Ahmad, Margayanti, D., Maslahah, F. N., Manazila, S. I., Puspitawedana, D., Yuliyantika, S., & A.Z, S. L. (2024). *Transformasi Pembelajaran Matematika: Panduan untuk Guru Abad 21* (Lisnawati (ed.)). Penerbit Amerta Media.
- Akbar, S. A., Sutomo, & Bramasta, D. (2024). Implementasi Strategi Guru Dalam
-

-
- Pembelajaran Ips Dengan Fasilitas Terbatas di Smp Muhammadiyah Maos Kabupaten Cilacap Syafril. *Pendas : Jurnal Ilmiah Pendidikan Dasar*, 09. <https://doi.org/https://doi.org/10.36989/didaktik.v10i04.5303>
- Alawiah, T., Maksum, A., & Madani, F. (2024). Inquiry-Based Learning Improving Critical Thinking Ability in View of Elementary School Students Learning Motivation. *Jurnal Elementaria Edukasia*, 7(3), 2985–2999. <https://doi.org/10.31949/jee.v7i3.9750>
- Alfansyur, A., & Mariyani. (2020). Seni Mengelola Data : Penerapan Triangulasi Teknik , Sumber Dan Waktu pada Penelitian Pendidikan SosiAlfansyur, Andarusni, and Mariyani. 2020. “Seni Mengelola Data : Penerapan Triangulasi Teknik , Sumber Dan Waktu Pada Penelitian Pendidikan Sosial.” *Histo. Historis : Jurnal Kajian, Penelitian & Pengembangan Pendidikan Sejarah*, 5(2), 146–150. <https://doi.org/https://doi.org/10.31764/historis.vXiY.3432>
- Ambarita, R. S., Wulan, N. S., & Wahyudin, D. (2021). Analisis Kemampuan Membaca Pemahaman pada Siswa Sekolah Dasar. *Edukatif : Jurnal Ilmu Pendidikan*, 3(5), 2336–2344. <https://doi.org/https://doi.org/10.31004/edukatif.v3i5.836>
- Annisa. (2023). Literature Review: Pengaruh Pendekatan Realistik Dalam Pembelajaran Matematika Terhadap Pemahaman Konsep Siswa. *Dikmat: Jurnal Pendidikan Matematika*, 04(02), 21–26. <https://doi.org/https://doi.org/10.56842/dikmat.v4i02.503>
- Ardellea, F., & Hamdu, G. (2022). Pentingnya Kemampuan Guru Sekolah Dasar dalam Mengembangkan Soal Tes Literasi dan Numerasi Berbasis Education for Sustainable Development (ESD). *Edu Cendikia: Jurnal Ilmiah Kependidikan*, 2, 220–227. <https://doi.org/10.47709/educendikia.v2i2.1587>
- Arlistiani, Sarpendi, & Fauzi, M. (2025). Implementasi Metode Tanya Jawab Dalam Meningkatkan Prestasi Belajar Sejarah Kebudayaan Islam Di Mts Hidayatul Mubtadiin Desa Sidoharjo Jati Agung Lampung Selatan. *Jurnal Pengabdian Masyarakat Dan Riset Pendidikan*, 3(4), 4076–4084. <https://doi.org/https://doi.org/10.31004/jerkin.v3i4.1194>
- Arwan, J. F., Hasan, S. H., Arifin, Z., & Kustiah, H. (2023). Analisis Kemampuan Berpikir Kritis pada Buku Bahasa Indonesia Kelas X Sekolah Penggerak dan SMK Pusat Keunggulan. *Jurnal Pendidikan Bahasa Dan Sastra*, 23(2), 233–248. https://doi.org/https://doi.org/10.17509/bs_jpbs.v23i2.68692
- Asfiana, Fitriyani, Selvia, N., & Fatonah, S. (2025). Pengaruh Lingkungan Sebagai Sumber Belajar dalam Peningkatan Pemahaman Siswa pada Pembelajaran IPA di Sekolah Dasar. *Al-Madrasah Jurnal Pendidikan Madrasah Ibtidaiyah*, 9(2), 741. <https://doi.org/10.35931/am.v9i2.4362>
- Barokah, A., Laelly, T. A., Febriyanti, U., & Apriliani, F. (2024). Analisis Literatur : Strategi Pembelajaran Inovatif Untuk Meningkatkan Motivasi Belajar Siswa Sekolah Dasar. *Innovative: Journal Of Social Science Research*, 4, 13298–13315. <https://doi.org/https://doi.org/10.31004/inovatif.v4i4.14667>
- Bukhari, H. Bin, Prayogi, S., & Muhali. (2023). Profil Literasi Sains Siswa Sekolah Dasar Pada Pembelajaran Ilmu Pengetahuan Alam Dan Sosial. *Bioscientist: Jurnal Ilmiah Biologi*, 11(2), 2005–2014.
-

-
- <https://doi.org/https://doi.org/10.33394/bioscientist.v11i2.14448>
- Corral, D., & Carpenter, S. K. (2024). Acquiring complex concepts through classification versus observation. *Cognitive Research: Principles and Implications*, 9(1). <https://doi.org/10.1186/s41235-024-00608-z>
- Eryani, R., Sutarna, S., & Desstya, A. (2021). Implementasi Modul Berbasis Inkuiri Terbimbing pada Pembelajaran IPA di Sekolah Dasar. *Jurnal Pendidikan: Teori, Penelitian, Dan Pengembangan*, 6(9), 1429–1435. <https://doi.org/10.17977/jptpp.v6i9.15007>
- Facione, P. a. (2015). Critical Thinking : What It Is and Why It Counts. In *Insight assessment* (Issue ISBN 13: 978-1-891557-07-1.). <https://www.insightassessment.com/CT-Resources/Teaching-For-and-About-Critical-Thinking/Critical-Thinking-What-It-Is-and-Why-It-Counts/Critical-Thinking-What-It-Is-and-Why-It-Counts-PDF>
- Heiden, T. R., & Rørbech, H. (2024). Entangled worlds: the becoming of interpretive spaces in pupils' engagement with literature through process drama. *Research in Drama Education*, 29(4), 635–653. <https://doi.org/10.1080/13569783.2024.2321221>
- Iskandar, S., Rosmana, P. S., Putri, H. I., Alqindy, K. K., & Anggrain, S. K. P. (2024). Peran Guru dalam Membangun Lingkungan Belajar yang Positif di Kelas. *Jurnal Pendidikan Tambusai*, 8, 25762–25770.
- Kumala, F. N., Yasa, A. D., & Samudra, R. D. (2022). Elementary Clarification Analysis (Critical Thinking Skill) Elementary School Students Based on Grade and Learning Method. *Jurnal Ilmiah Sekolah Dasar*, 6(3), 459–467. <https://doi.org/https://doi.org/10.23887/jisd.v6i3.47366>
- Kurniawan, E. S. (2023). Strategi Jembatan Konsep Analogi Untuk Meningkatkan PhyHOTS Peserta Didik Pada Pembelajaran Fisika. *Jurnal Inovasi Pendidikan Sains (JIPS)*, 4(1), 10–16. <https://doi.org/https://doi.org/10.37729/jips.v4i1.3023> |
- Kurniawati. (2021). Penerapan Model Pembelajaran Inkuiri Terbimbing Untuk Meningkatkan Keterampilan Proses Sains Siswa. *Primary: Jurnal Pendidikan Guru Sekolah Dasar*, 10(April), 384–392. <https://doi.org/http://dx.doi.org/10.33578/jpkip.v10i2.8250>
- León, M., Lemmi, C., Sedlacek, Q., & Alexander, N. (2024). Languaging - as - practice in science education : an alternative to metaphors of language - as - tool. *Cultural Studies of Science Education*, 19(4), 623–631. <https://doi.org/10.1007/s11422-024-10228-0>
- Mahendra, A., Ilhami, M. W., Nurfajriani, W. V., Sirodj, R. A., & Afgani, M. W. (2024). Metode Etnografi Dalam Penelitian Kualitatif. *Penambahan Natrium Benzoat Dan Kalium Sorbat (Antiinversi) Dan Kecepatan Pengadukan Sebagai Upaya Penghambatan Reaksi Inversi Pada Nira Tebu*, 10(September), 159–170. <https://doi.org/https://doi.org/10.5281/zenodo.13853562>
- Mahmood, N., Bhatti, S. M., Dawood, H., Pradhan, M. R., & Ahmad, H. (2024). Measuring Student Engagement through Behavioral and Emotional Features Using Deep-Learning Models. *Algorithms*. <https://doi.org/https://doi.org/10.3390/a17100458>
- Maisarah, A., Zulaiqah, N. A., Fitri, A., Hakiki, N., & Mulyani, S. (2025). Pengaruh
-

-
- Metode Diskusi Kelompok dan Debat Terhadap Kemampuan Berfikir Kritis Mahasiswa The Influence of Group Discussion and Debate Methods on Students ' Critical. *Edu Society: Jurnal Pendidikan, Ilmu Sosial, Dan Pengabdian Kepada Masyarakat*, 5(2), 334–346. <https://doi.org/https://doi.org/10.56832/edu.v5i2.1163>
- Meilana, S. F., & Aslam. (2022). Pengembangan Bahan Ajar Tematik Berbasis Kearifan Lokal di Sekolah Dasar. *Jurnal Basicedu*, 6(4), 5605–5613. <https://doi.org/https://doi.org/10.31004/basicedu.v6i4.2815>
- Musoffa, L., Anggraeni, A. W., & Citraningrum, D. M. (2025). The Effect Of Group Discussion Learning On Improving Students' Critical Thinking Skills In Essay Writing. *Journal of Educational Sciences*, 9(6), 6009–6020. <https://doi.org/https://doi.org/10.31258/jes.9.6.p.6009-6020>
- Nakamoto, R., Flanagan, B., Dai, Y., Yamauchi, T., Takami, K., & Ogata, H. (2023). Enhancing Self-Explanation Learning through a Real-Time Feedback System: An Empirical Evaluation Study. *Sustainability*. <https://doi.org/https://doi.org/10.3390/su152115577>
- Nazidah, M. D. P., Hafidah, R., & Jumi atmoko. (2023). Peningkatan Kemampuan Klasifikasi melalui Media Kotak Sortasi pada Anak Usia 5-6 Tahun. *Kumara Cendekia*, 12(1), 10–20. <https://doi.org/https://doi.org/10.20961/kc.v12i1.77665>
- Ngatminiati, Y., Hidayah, Y., & Suhono, S. (2024). Keterampilan Berpikir Kritis Untuk Mengembangkan Kompetensi Abad 21 Siswa Sekolah Dasar. *Jurnal Review Pendidikan Dan Pengajaran (JRPP)*, 7(3), 8210–8216.
- Oktavia, N., Tanzimah, & Suryani, I. (2022). Analisis Pemahaman Konsep Mata Pelajaran Bahasa Indonesia Tentang Teks Narasi Siswa Kelas V SD. *Edumaspul - Jurnal Pendidikan*, 6(1), 203–211.
- Pedaste, M., Baucal, A., & Reisenbuk, E. (2021). Towards a science inquiry test in primary education: development of items and scales. *International Journal of STEM Education*, 8(1). <https://doi.org/10.1186/s40594-021-00278-z>
- Qomaruddin, Q., & Sa'diyah, H. (2024). Kajian Teoritis tentang Teknik Analisis Data dalam Penelitian Kualitatif: Perspektif Spradley, Miles dan Huberman. *Journal of Management, Accounting, and Administration*, 1(2), 77–84. <https://doi.org/https://doi.org/10.52620/jomaa.v1i2.93>
- Rahma, F. S. A., Ngazizah, N., & Anjarini, T. (2025). Analysis of Students' Misconceptions in Answering Multiple Choice Questions on Magnetic Material with the Help of the Certainty of Response Index Method. *Jurnal Cakrawala Pendas*, 11(1), 266–277.
- Repu, M. T., Tea, M., Gaba, T., & Qondias, D. (2025). Analisis Kesulitan Belajar Siswa Kelas VI SDK Waepana. *Didaktik: Jurnal Ilmiah PGSD FKIP Universitas Mandiri*, 11, 280–301. <https://doi.org/https://doi.org/10.36989/didaktik.v11i02.6556>
- Rifa'i, Y. (2023). Analisis Metodologi Penelitian Kualitatif dalam Pengumpulan Data di Penelitian Ilmiah pada Penyusunan Mini Riset. *Cendekia Inovatif Dan Berbudaya: Jurnal Ilmu Sosial Dan Humaniora*, 1(1), 31–37. <https://doi.org/10.59996/cendib.v1i1.155>
- Ruslandi, U., Qomariyah, S., & Sumitra, M. (2025). Peran Metode Pembelajaran Diskusi dalam Menciptakan Keaktifan Belajar Siswa di MAS Tarbiyatul
-

- Islamiyah. *Katalis Pendidikan: Jurnal Ilmu Pendidikan Dan Matematika*, 2. <https://doi.org/https://doi.org/10.62383/katalis.v2i1.1203>
- Safrudin, R., Zulfamanna, Kustati, M., & Sepriyanti, N. (2023). Penelitian Kualitatif. *Innovative: Journal Of Social Science Research Journal Of Social Science Research*, 3(2), 1–15.
- Saputra, H. (2022). *Kemampuan Pemahaman Matematis*. September.
- Simin, Yanuar, A., Fazar, W., Siswanto, D., Feriyadi, D., & Dinoto, M. (2025). Pelatihan Dan Pendampingan Pembelajaran Matematika Berbasis Pendekatan Deep Learning Bagi Guru Sma/Smk. *Warta Karsa Tanjungpura*, 1, 62–73.
- Steininger, T. M., Wittwer, J., & Voss, T. (2022). Classifying Examples is More Effective for Learning Relational Categories Than Reading or Generating Examples. *Instructional Science*, 50(5), 771–788. <https://doi.org/10.1007/s11251-022-09584-7>
- Sucipta, I. W., Candiasa, I. M., & Sudirtha, I. G. (2023). Pengaruh Model Pembelajaran Berbasis Masalah Dan Bentuk Asesmen Formatif Terhadap Kemampuan Berpikir Kritis. *Jurnal Penelitian Dan Evaluasi Pendidikan Indonesia*, 13(2), 168–178. <https://doi.org/https://doi.org/10.23887/jpepi.v13i2.2660>
- Sutrisno. (2021). Analisis Dampak Pembelajaran Daring terhadap Motivasi Belajar Siswa MI Muhammadiyah 5 Surabaya. *JURMIA: Jurnal Riset Madrasah Ibtidaiyah*, 1(1), 1–10. <https://doi.org/https://doi.org/10.32665/jurmia.v1i1.190>
- Syafawani, U. R., & Utami, I. I. S. (2025). Perspektif Guru: Pengembangan Pemahaman Konsep Abstrak Siswa Melalui Implementasi Model Pembelajaran Concept Learning Pada Mata Pelajaran IPS. *Jurnal Pengajaran Sekolah Dasar*, 4(1), 57–78. <https://doi.org/10.56855/jpsd.v4i1.1556>
- Wijaya, A. A., Haryati, T., & Wuryandini, E. (2025). Implementasi Pendekatan Deep Learning dalam Peningkatan Kualitas Pembelajaran di SDN 1 Wulung, Randublatung, Blora. *Indonesian Research Journal on Education*, 5, No. 1, 451–457. <https://doi.org/https://doi.org/10.31004/irje.v5i1.1950>
- Yanti, S. R., Hidayat, A., Agusta, A. R., & Rafianti, W. R. (2025). Implementasi Model Arunika untuk Meningkatkan Kemampuan Interpretasi Siswa Sekolah Dasar. *Jurnal Teknologi Pendidikan Dan Pembelajaran (JTTP)*, 03(01), 1–7.
- Zulaikha, & Huriyah. (2025). Strategi Guru Meningkatkan Rasa Percaya Diri Siswa Kelas IV MIN 16 Banjar. *Jurmia: Jurnal Riset Madrasah Ibtidaiyah*, 5(1), 1–16. <https://doi.org/https://doi.org/10.32665/jurmia.v5i1.3162>

How to cite this article:

Rohmah, Y. A., & Utama. (2026). Cultivating Interpretation Skills in IPAS Learning at Madrasah Ibtidaiyah. *Journal of Educational Sciences*, 10(1), 820-835.