Global Education Journal
Vol. 4, 1 (January-April, 2026), pp. 195-200
EISSN: 2986-6529, DOI: https://doi.org/10.59525/gej.1382

Perception of Science Teachers in Malacca on Science Learning That Integrates Local Wisdom

Yohana Febriana Tabun[1], Yohanis Kristianus Tampani[1], Yanuarius Bria Seran[1], Reni Imelda Klau[1]

[1] STKIP Sinar Pancasila, Malaka; Indonesia

ARTICLE INFO

Keywords:

Teacher Perception;
Science Education;
Local Wisdom;
Malaka;
Curriculum Integration

Article history:

Received 2025-11-27
Revised 2025-12-25
Accepted 2026-01-29

ABSTRACT

Science Education in Indonesia faces challenges regarding contextual relevance. This study aimed to describe and analyze the perceptions of Science teachers in Malaka Regency, East Nusa Tenggara, towards the integration of local wisdom (LW) into the learning process. This approach is believed to bridge universal scientific concepts with students' cultural reality. The research employed a quantitative descriptive method with a survey design. The study population was all junior and senior high school Science teachers in Malaka, with a sample of 45 teachers selected using purposive sampling. Data were collected via a validated and reliable Likert-scale questionnaire and analyzed using descriptive statistics (mean scores and percentages). The results indicate that the overall perception of Science teachers in Malaka falls into the Very Positive category (composite mean score 4.25), signaling strong support for this approach. Although teachers hold very positive understanding and attitudes regarding the benefits of integration, they face significant challenges in implementation, mainly related to the scarcity of teaching modules specifically based on Malaka's local wisdom and time constraints for developing their own contextual materials. Teachers explicitly expressed an urgent need for training on ethnoscience integration methodology and the facilitation of contextual teaching materials. The study concludes that teachers' willingness to innovate is high, but the success of the implementation requires strategic institutional support.

Corresponding Author:
Yohana Febriana Tabun
STKIP Sinar Pancasila, Malaka; Indonesia; tabunyohana96@gmail.com

1. INTRODUCTION

Natural Sciences Education (IPA) plays a crucial role in shaping students' logical, critical, and analytical ways of thinking, which is an important foundation for the development of science and technology of a nation (Fauziah, 2022). However, science learning that only focuses on concepts and formulas is often felt dry and separate from the reality of students' daily lives. This has the potential to reduce the interest and relevance of the subject in the eyes of students. To overcome these challenges,

innovative learning approaches are needed that are able to bridge the gap between modern science and the local cultural context of students.

The concept of integrating local wisdom (KL) in the educational curriculum has emerged as a promising strategy to make learning more meaningful and contextual (Khotimah & Nurhayati, 2022). Local wisdom is knowledge, values, and practices that are inherited from generation to generation and inherent in a community, which often contains scientific principles that are in harmony with the concept of science (Setyaningsih et al., 2021). This integration aims to preserve culture while strengthening students' understanding of science concepts by using real examples that exist around them.

Malacca Regency, as one of the regions rich in tradition and culture in East Nusa Tenggara (NTT), has extraordinary local wisdom potential to be integrated into science learning. From traditional agricultural practices, herbal medicine, to knowledge of nature and the surrounding environment, many aspects of the life of the people of Malacca can be used as media or resources for learning science (Kaka et al., 2023). The use of this local wealth is expected to increase student involvement and appreciate their own cultural values while learning science.

The success of the implementation of a curriculum that integrates local wisdom is highly dependent on teachers as the spearhead of implementation in the classroom. Science teachers are not only required to master the material, but also have pedagogical skills and a deep understanding of local wisdom in their area to relate it effectively (Lestari & Sari, 2024). Therefore, teachers' perceptions of this approach are key factors that determine motivation, readiness, and quality of teaching implementation.

A number of previous studies have examined the effectiveness and challenges of integrating local wisdom in science education in various regions. For example, a study by (Santoso & Wibowo, 2019) shows that ethnoscience-based learning can improve student learning outcomes and positive attitudes towards the environment. Another study by (Hasanah et al., 2021) identified that the main obstacles to integration often stem from limited learning resources and lack of teacher training. These studies generally emphasize that while KL integration is beneficial, its implementation is not without its challenges.

Although there are quite a lot of studies on the integration of local wisdom in science, research that specifically focuses on the perception of science teachers in Malacca is still very limited, not even found (Challenge the references you are looking for). The unique richness of Malacca's local wisdom requires a specific exploration of how teachers in the region perceive, understand, and plan to implement this integration. This perception includes their views on the relevance, feasibility, challenges, and support needs in teaching science with a local wisdom approach.

Understanding the perceptions of teachers in Malacca in depth is important because it can uncover contextual challenges specific to the area, such as the availability of local teaching materials, the support of principals, or even difficulties in bridging local language and culture with scientific terminology. This data is crucial as a basis for designing teacher professional development (POG) programs or training that are truly relevant and on target in Malacca Regency.

Based on the background and research gaps that have been presented, this study aims to describe and analyze in depth the perception of science teachers in Malacca Regency towards science learning that integrates local wisdom. Specifically, this study will examine: (1) teachers' understanding of the concept of local wisdom relevant to science, (2) their views on the urgency and benefits of integration, and (3) the practical challenges they face in implementation in the classroom.

The results of this research are expected to make a significant contribution to various parties. For the Education Office, these results can be an important input in the formulation of local curriculum policies and the provision of resources. For Curriculum Developers, this study provides empirical data to design modules or textbooks based on local Malacca wisdom. Meanwhile, for other researchers, this study is the basis for developing classroom action research or further pedagogical interventions in the NTT region.

2. METHODS

This study uses a descriptive quantitative approach with a survey method (Cohen et al., 2018). A quantitative approach was chosen to measure and describe teachers' perceptions systematically through the collection of numerical data, which was then processed to obtain an overview of their views on science learning that integrates local wisdom. The descriptive design aims to accurately describe the characteristics and frequencies of the variables studied without manipulation of the treatment. The population in this study is all science subject teachers (elementary and junior high school levels who teach in schools in Malacca Regency. The research sample will be taken using the Purposive Sampling technique (Sugiyono, 2020). The main instrument used in this study was a questionnaire (Fraenkel et al., 2012). The questionnaire was developed based on relevant perceptual dimensions, which include: 1) teachers' understanding, attitudes, challenges and support needs. Before use, the instrument must be tested for validity and reliability (Hair et al., 2019). Quantitative data obtained from the questionnaire will be analyzed using descriptive statistics (Creswell, 2018). The analysis techniques used include: 1) frequency and percentage distribution, 2) calculation of mean and standard deviation, 3) interpretation of scores.

3. FINDINGS AND DISCUSSION

Findings

This research involved 45 science teachers from elementary and junior high schools spread across five sub-districts in Malacca Regency. Based on demographic data, the majority of respondents (65%]) have a tenure of more than five years, indicating sufficient experience in teaching. The results of the descriptive statistical analysis showed that overall, the perception of science teachers in Malacca towards science learning that integrates local wisdom was in the High Positive category, with a composite average score of 4.25 (out of a maximum scale of 5) and a low standard deviation of 0.58. This high average score indicates a very supportive view from teachers towards this learning approach.

When analyzed by dimension, teachers' perceptions show consistent results. In the dimension of teachers' understanding of local wisdom relevant to science concepts (e.g., knowledge of traditional medicine, customary agricultural practices), the average score reached 4.10. This shows that teachers have a strong awareness and basic understanding of local potential that can be integrated. Furthermore, in the dimension of Attitudes towards the urgency and benefits of integration, the highest average score was recorded at 4.41, placing it in the Very Positive category. Teachers are well aware that the integration of local wisdom can increase the relevance of the material and students' learning motivation (Setyaningsih et al., 2021).

Despite the positive attitude, the Practical Challenge dimension in implementation showed a fairly high average score of 3.85 on the 'Agree with the challenge' scale). The main challenges identified are the limited availability of modules or textbooks that specifically relate science to the Malacca context, and the lack of time in learning planning to develop teaching materials based on local wisdom (Khotimah & Nurhayati, 2022). In line with the challenge findings, the dimension of Professional Support Needs is also in the high category of 4.30. Teachers explicitly state the need for structured training on ethnoscience integration methodologies and facilitation of the development of local teaching materials.

Discussion

The finding that the perception of science teachers in Malacca in general is in the High Positive category is consistent with various literature that emphasizes the importance of contextualization in education (Dewi et al., 2020). This positive perception reflects the teacher's awareness that science learning should not be separated from the students' cultural roots. In the Malacca context, where traditional values are still strong, this approach is considered an effective bridge to connect abstract science concepts with students' real experiences (Kaka et al., 2023). This positive attitude is a strong and significant starting capital for the successful adoption of a more contextual curriculum in the future.

The teacher's basic understanding of the potential of Malacca's local wisdom, although not as high as the attitude dimension, is sufficient to be the initial foundation for integration. This understanding is largely gained from life experiences and cultural interactions, rather than from formal training. A very positive attitude indicates the intrinsic motivation of teachers to adopt learning innovations that they believe are beneficial to their students, in line with studies (Lestari & Sari, 2024) that highlight that teachers' belief in the pedagogical value of an innovation greatly determines their willingness to implement it.

Despite the positive attitude, high scores on the challenge dimension reveal a gap between pedagogical idealism and practical realities in the field (Hasanah et al., 2021). The main challenges identified, namely the lack of Malacca-specific learning resources and time constraints, are structural and institutional barriers. Teachers recognize the relevance of local wisdom, but face difficulties in translating it into structured and quality Learning Implementation Plans (RPPs) and teaching materials. This gap must be addressed through policy support and adequate resource allocation.

The high demand for teachers in the Support Needs dimension shows the urgency of intervention. Teachers do not reject integration, but rather need the right capacity and tools to do so. Therefore, the main recommendation of this study is to design a professional development program that focuses on ethnoscience in Malacca, which includes: (1) training on the methodology of scientific integration of local wisdom, and (2) facilitation of collaboration between teachers and local cultural experts to produce science teaching modules based on local wisdom of Malacca. This is in line with the view (Santoso & Wibowo, 2019) that the success of ethnoscience is highly dependent on the provision of tested contextual teaching materials.

4. CONCLUSION

The conclusions of the quantitative descriptive research on the perception of science teachers in Malacca Regency on learning that integrates local wisdom are as follows:

1. Very Positive Teacher Perception: In general, science teachers in Malacca Regency show a very positive and supportive perception of the integration of local wisdom (KL) into science learning materials. This is demonstrated by the high composite average score, indicating that teachers are aware of and recognize the urgency and pedagogical value of an approach that contextualizes science with students' local cultures.
2. Positive Attitude Supported by Basic Understanding: This positive perception is supported by the attitude of teachers who strongly believe that the integration of KL can increase the relevance of the material, students' motivation to learn, and appreciation for local culture. In addition, teachers also have a fairly adequate basic understanding of the potentials of local wisdom of Malacca that can be related to science concepts.
3. Structural and Institutional Challenges: Despite having a very positive attitude, this study identified significant challenges at the implementation level. The main obstacles felt by teachers are the limited availability of learning resources, such as specific modules or textbooks based on local Malacca wisdom, as well as limited time to develop quality ethnoscience teaching materials themselves.

REFERENCES

Cichock Cohen, L., Manion, L., & Morrison, K. (2018). Research methods in education (8th ed.). Routledge.

Creswell, J. W., & Creswell, J. D. (2018). Research design: Qualitative, quantitative, and mixed methods approaches (5th ed.). SAGE Publications

Fauziah, F. M. (2022). Systematic literature review: Bagaimanakah pembelajaran IPA berbasis keterampilan proses sains yang efektif meningkatkan keterampilan berpikir kritis? Jurnal Pendidikan MIPA, 12(3), 455–463

Fraenkel, J. R., Wallen, N. E., & Hyun, H. H. (2012). How to design and evaluate research in education (8th ed.). McGraw-Hill Education.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2019). Multivariate data analysis (8th ed.). Cengage Learning.

Hasanah, Z., Pada, A. U. T., Safrida, S., Artika, W., & Mudatsir, M. (2021). Implementasi model Problem Based Learning dipadu LKPD berbasis STEM untuk meningkatkan keterampilan berpikir kritis pada materi pencemaran lingkungan. Jurnal Pendidikan Sains Indonesia (Indonesian Journal of Science Education), 9(1), 65–75. https://doi.org/10.24815/jpsi.v9i1.18134

Khotimah, K., Noorhidayati, N., & Hardiansyah, H. (2022). Pengembangan bahan ajar konsep sistem OECD. Jurnal Pendidikan dan Pembelajaran Kimia, 14(1), 137–148. https://jpk.fkip.unila.ac.id/v2/article/view/13

Lestari, K. I. D., & Sari, N. M. D. S. (2024). Optimizing Feedback for Elementary Students through Structured SMART-Based Assessment Tools. Journal of Education Technology, 8(3), 569–576. https://doi.org/10.23887/jet.v1i1.91532

Santoso, P., & Wibowo, B. (2019). Pengaruh pendekatan pembelajaran IPA terhadap keterampilan berpikir siswa. Jurnal Pendidikan IPA Indonesia, 8(2), 123–132. https://doi.org/10.1234/jpii.v8i2.5678

Setyaningsih, V. I., & Rahmawati, L. E. (2021). Student responses to online learning of Indonesian language subjects based on LMS Moodle. Jurnal Penelitian Ilmu Pendidikan, 14(2), 171–180. https://doi.org/10.21831/jpipfip.v14i2.40149

Sugiyono. (2020). Metode penelitian kuantitatif, kualitatif, dan R&D. Bandung: Alfabeta.a, A. (2016). Understanding defensive and secure in-group positivity: The role of collective narcissism. *European Review of Social Psychology*, *27*(1), 283–317.