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Development of Ethnoscience-Based Learning on Bugis Traditional Food in The 4th Grade IPAS Textbook in Elementary Schools

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Abstract: This research aims to develop a textbook based on local wisdom with an integration of ethnoscience learning about traditional Bugis food. This research used Research and Development with a 4D model which consists of four stages, namely define, design, develop and disseminate. The research subjects for the practicality test included 192 students of IV grade elementary school and 6 teachers from the school population in Pallangga District, Gowa Regency, South Sulawesi. The validity test of textbooks was judged by material experts, language experts and media experts. Based on the results of the analysis of the Gregory formula, it is stated that the validation coefficient for learning books by material experts, media experts and language experts was 1.00 with the content validity category being "very high". The results of the textbook validation received a very high assessment and were categorized as valid because the contents of the textbook were in accordance with the competencies and indicators that must be achieved by fourth grade elementary school students. This is demonstrated by the accuracy, completeness and suitability of the core material and supporting material according to student characteristics. The average teacher response to textbooks was 95% in the "very practical" category and the average student response was 92%. In the Ease of Use (navigation) aspect, the textbook ease indicator reached an average value of 0.89 or 89%. These results showed that students did not experience difficulties in using the science and technology textbook based on local Bugis traditional wisdom because the instructions in the book are clear.

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Introduction

The learning context for Natural and Social Sciences (IPAS) in the curriculum in Indonesia, especially the independent curriculum, is closely related to socio-cultural, socio-economic studies, and natural knowledge (Annisa et al., 2021a; Yulinda Antika et al., 2022). This can be seen from the objectives in the curriculum document (Ningsih et al., 2020), which integrates science studies with the realm of social, economic, cultural, and ecological studies, which are closely related to daily life and human welfare (Lightner et al., 2021). The close relationship between science and science knowledge in ethnoscience can also be observed through various natural phenomena related to the environment and chemical and biological events (Fahrudin et al., 2023; J. Fisika et al., 2019).

Independent curriculum learning, including ethnoscience studies, encourages students to have high-level conceptual knowledge about their social and natural world (Lubis et al., 2021). Based on the independent curriculum, learning in Indonesia has directed teachers in socio-economic, socio-cultural integration, and environmental studies. In order to support independent curriculum learning, learning tools are needed to facilitate teachers in carrying

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out integrated ethnoscience learning. The most commonly used learning tools in Indonesia are textbooks, so providing ethnoscience-based textbooks in science and science learning is essential (Nyoman et al., 2023; Sarwi et al., 2020).

The teaching textbook, which in this case contains the entire science study, has a very important role in supporting learning in schools (Putu Verawati et al., 2022). Integrating ethnoscience studies in learning at school, especially in teaching textbook, has been proven to have a positive impact on student learning outcomes and character (Andayani et al., 2021). Previous research has confirmed the potential of local wisdom in science and social studies (Aminin & Huda, 2018; Idang, 2015) in increasing students' social and cultural awareness. So, the availability of teaching textbook that are integrated with ethnoscience studies is considered capable of providing an overview of the potential for implementing integrated ethnoscience learning, which has become the goal of learning in the independent curriculum.

Indonesia is recorded as having carried out various ethnoscience-based science and science learning efforts (Ferdianto, 2018; PISA 2009 Assessment Framework Key Competencies in Reading, Mathematics and Science Programme for International Student Assessment, 2009), then providing new knowledge regarding the role of critical thinking combined with cultural entities and local wisdom which can increase students' scientific knowledge (Yolanda Christanty & Dewi Kurniasih, n.d.). This shows the great potential of ethnoscience-based science and science learning in increasing scientific knowledge and appreciation and sensitivity to the surrounding environment. However, research results show that the majority of teachers have not used an ethnoscience approach in implementing learning (Nur Afinni Dwi Jayanti et al., 2017). It is still uncommon for science and science learning to be integrated with ethnoscience studies, especially in socio-cultural studies. This is possible because there is still no availability of teaching materials that can assist teachers in implementing ethnoscience-based learning. Apart from the importance of analyzing the content of science and science teaching materials on STEM and SDGs aspects, knowing the potential for ethnoscience-based science and science learning, especially in socio-cultural studies in independent curriculum teaching materials, is very important (Isra et al., 2022).

Local wisdom emerges from human thoughts, attitudes, and behavior in social life and is then interpreted as values (Hidayatulloh et al., n.d.). These wisdom values are in the form of positive values, both in terms of religion, culture, customs, social, arts, natural resources, even works and other habits carried out by a community in a place (Kania & Mulyani IAIN Syekh Nurjati Cirebon, n.d.). Local wisdom-based education provides real and concrete learning regarding what students face (Mumpuni et al., n.d.). It is hoped that students will be able to understand science through analysis of scientific facts in everyday life that develop in society (Roshayanti et al., 2020) (Ismail, 2024). The local wisdom around us has yet to be utilized optimally in learning at school. In general, learning textbooks have learning materials and activities that are not appropriate to the conditions of students, teachers, and the school environment, even though contextual learning materials are part of developing learning standards (Jamaluddin et al., 2023) (Journal et al., 2021).

Traditional Bugis food is knowledge that comes from knowledge passed down from generation to generation. Efforts that can be made are to include integrating them into learning material, so that students get used to the learning resources around them, and learning will become more challenging and interesting, and it can improve the quality of learning carried out by teachers (Yakob & Mauliza, 2018).

Student learning success requires everyday life experiences incorporated into an integrative learning process with local culture and wisdom. Providing integrative learning to

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students can be done through instilling local wisdom values where the students are (Zaenal et al., 2020). This aims to maintain and preserve the local culture that exists around the students' environment (Rusilowati et al., 2024) (Kornhaber et al., 2016). In the learning process, knowledge, attitudes, and skills are transformed. During learning activities, student activity is required, where students are the subject of the activity, while the teacher's task is to provide guidance and direction (Putra et al., 2024). Efforts that can be made to improve the learning process are by integrating traditional food ethnoscience with the concept of biodiversity and culture. The initial step is conducting a study of Core Competencies and basic Competencies, then connecting them with local wisdom to determine several concepts related to the concept of biodiversity and culture, then completing them in teaching modules, as well as creating teaching materials and assessment tools (Dinurrohmah et al., 2023; Sari et al., 2023).

Indigenous Bugis local wisdom, rich in traditional values, folklore and sustainable practices, offers deep insight into the harmonious relationship between humans and nature. By integrating these elements in learning materials, students will not only understand the importance of preserving their culture, but also develop awareness of increasingly pressing environmental issues. This research aims to develop a textbook based on local wisdom with an integration of ethnoscience learning about traditional Bugis food. It is hoped that the textbook that will be developed can become a bridge that connects local knowledge with global challenges, forming individuals who are not only academically intelligent, but also have high social and ecological awareness.

Research Method

This research used a Research and Development (R&D) research method with a 4D model. Some of the stages include define, design, develop, and disseminate (Thiagarajan, 1974:5). In the define phase, the goals and needs of the project are clearly determined, involving situation analysis and identification of the target audience. Next, the design phase involved detailed planning of the proposed solution, including the preparation of appropriate curriculum or teaching materials. In the develop phase, the designed content is produced and tested, with special attention to the quality and relevance of the material. Finally, the disseminate phase aims to disseminate the final product to the intended users, as well as evaluate the impact and effectiveness of the product. This model helps in creating a structured and systematic development process, so that the results produced can be of higher quality and relevant to user needs (Branch, 2009).

Textbook validation test subjects carried out by six experts related to material, language, and media experts. The instrument validation results were then analyzed by calculating the Gregory validation coefficient (Gregory, 1970). The validation instrument grid and validation results can be seen in the Table 1.

Table 1. Grid of Material Expert Assessment Instruments

Aspect	Indicator	Item Number	Item Amount
Appropriateness of content	Suitability to Learning Objectives	1,2,3	3
	Accuracy and Up to Date	4,5,6,7	4
	Supports Learning	8,9,10	3
Suitability of Presentation	Presentation Technique	11,12	2
	Presentation Supports	13,14,15	3
	Completeness of Presentation	16,17,18	3
Textbook based on Local Bugis	Cover Illustration	19	1
	Content Illustration	20	1

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Traditional Wisdom	Textbook Materials	21	1
	Letters	22,23	2
	Local wisdom of Bugis Customs in Traditional Food	24	1
		Amount	24

Another aspect that was used as an assessment for the textbooks being developed was the language aspect. The following is a grid of language validation instruments.

Table 2. Language Validation Instrument Grid

Aspect	Indicator	Item Number	Item Amount
Language Suitability	Clarity	1,2,3,4	4
	Suitability to the Level of Development of Students	5,6,7,8	4
	Sequence and Integration of Thought Flow	9,10	2
		Amount	10

Below is a grid of media expert instruments based on aspects of graphic feasibility.

Table 3. Media Expert Assessment Instrument Grid

Aspect	Indicator	Item Number	Item Amount
Graphic Feasibility	Textbook Size and Components, Textbook Cover Design	1,2	2
	Cover Design	3,4,5,6,7,8,9,10,11	9
	Textbook Content Design	12,13,14,15,16,17,18, 19,20,21,22,23,24,25	14
		Amount	25

In the validator assessment, it was then converted to a *Likert* scale, whose weights were 5,4,3,2,1. Determining the *Likert* scale score for a scale with a positive direction will have the possible scores of (5) Very Good, score (4) Good, score (3) Fair, (2) Poor, and score (1) Very Poor. After the data was collected and tabulated, it was then calculated using the average value formula.

How to determine product validity, the results obtained from calculating the average value are adjusted to the categories which can be seen in Table 4.

Table 4. Validator Assessment Category

Average Range of Validity	Category
$4 \leq RTV \leq 5$	Very Valid
$3 \leq RTV \leq 4$	Valid
$2 \leq RTV \leq 3$	Less Valid
$1 \leq RTV \leq 2$	Invalid

(Akbar, 2013)

The textbook practicality instrument was in the form of a questionnaire which was used to measure the level of practicality of using this book in the learning process. Questionnaires would later be filled out by students and teachers who use this book in the learning process. The subject of practicality testing was carried out by conducting field trials on fourth grade elementary school students in Pallangga District, Gowa Regency, South Sulawesi, in more detail can be seen in Table 5 below.

Table 5. Practicality Test Subjects

Number	Schools	Subjects	Amount
1	SD Inpres Bontoala I	Teacher 4th grade	1
		Students	30

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2	SD Inpres Bontoala II	Teacher 4th grade	1
		Students	35
3	SD Inpres Lambengi	Teacher 4th grade	1
		Students	30
4	SD Inpres Jenetallasa	Teacher 4th grade	1
		Students	32
5	SD Inpres Sanrangan	Teacher 4th grade	1
		Students	30
6	SD Negeri Taeng	Teacher 4th grade	1
		Students	34

Results and Discussion

The validity of the content of the textbook being developed was reviewed based on the results of expert appraisal carried out at the develop stage. The content validity test of this learning tool was carried out by 6 experts consisting of 2 material experts, 2 language experts, 2 media experts. Next, initial product trials and main product trials were carried out by expert teacher achievers, class teachers and also lecturers. After validating the content by experts and conducting trials, the prototype science textbook based on local Bugis Indigenous wisdom was ready for the next test. The following measures the validity of the material content, language and media using the average formula. Based on the validity assessment of the IPAS textbook based on local Bugis Indigenous wisdom, the results obtained can be seen in Table 6 below.

Table 6. Validity of Textbook Content Based on Local Bugis Traditional Wisdom

Number	Expert Validity	Aspect	Item Total	Expert Score I	Expert Score II
1	Material	Content Eligibility	10	50	46
2		Feasibility of Presentation	8	40	37
3		Display of Local Wisdom Based Textbooks	6	30	29
4	Language	Language Eligibility	10	47	49
5	Media	Eligibility Graphic	25	122	124
		Score Total	59	289	285
		Average/Expert		4,9	4,8
		Overall Average Score		**4,86**	

Based on Table 6, the tabulation results above show an average validity of 4.86. Referring to the validity category in Table 4, the validator assessment category, the average validity of 4.86 was included in the very valid category. The validation results showed that the content presented in the IPAS textbook based on traditional Bugis food was suitable for use for learning.

The next stage of developing this product is testing to a larger stage, namely field trials. The process of this stage is to implement products developed in field areas and more real conditions. Implementation of field trials, measured by questionnaires of teacher and student responses to the textbooks being developed. The average data on teacher and student responses to the textbooks being developed was then converted according to the theoretical

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ideal reference assessment criteria. The following is the cover of a science and science (IPAS) textbook based on Bugis local wisdom that has been developed.

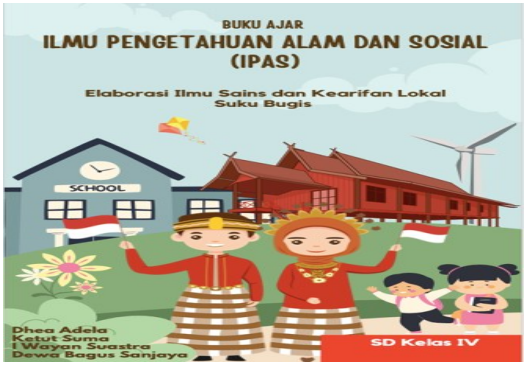

Figure 1. Textbook Cover

The study that was carried out on the science teaching module for grade IV elementary schools resulted in the potential for developing local wisdom-based learning with the integration of ethnoscience in every aspect of the study that was carried out. The analysis above provides information for developing teaching materials based on local wisdom of traditional Bugis food because it has scientific knowledge value. Below are several types of traditional Bugis food which can be used as material for developing ethnoscience-based learning.

Table 7. Types of Traditional Bugis Food

No.	Traditional Food	Ethnoscience Value	Elaboration of Learning Objectives
1	Katirisala  *Source: detik.com*	The ethnoscience in this cake is the ingredient, songkolo. Songkolo, or sticky rice, is a symbol of resilience. This cake is also known as sticky rice under sugar (Kadir, 2021).	Getto know the components of traditional Bugis food and their characteristics.
2	Es Pisang Ijo  *Source: IDN Times*	Pisang Ijo Ice is made from green bananas coated with green dough. The banana is rolled like a rice cake and cooked in boiling water. Then, the banana is cut into pieces and served with coconut milk and liquid brown sugar (Nirwana, 2022).	Identifying changes in material form in components of traditional food, which are the natural wealth of the Bugis Tribe.
3	Kue Taripang  *Source: sulsel.hallo.id*	The main ingredient used is glutinous rice flour mixed with coconut. After the frying process, the Taripang is then coated with melted brown sugar (Yunus, 2020).	Examining changes and developments in the form of regional traditions on the economy of the Bugis Tribe.

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4	Barongko  *Source:disbudpar.sulselprov.go.id*	The dough ingredients for making barongko consist of mashed kepok bananas, eggs, coconut milk, granulated sugar and salt. Meanwhile, the ingredients for wrapping the barongko dough are pandan leaves and banana leaves. Barongko is made through steaming.	Studying the characteristics of substances/materials.
5	Kue Karasa  *Source: sulsel.idntimes.com*	Karasa cake dough is ground rice flour mixed with water, which will flow through the hole (Yusuf et al., 2022).	Identifying changes in material form in components in traditional food which are the natural wealth of the Bugis Tribe.

The results of obtaining the average practicality value for each respondent (teachers) can be seen from the average value for each aspect in Table 8 below.

Table 8. Results of Teacher Response Questionnaires on Textbooks

Rated Aspect	Practical Value	Category
Ease of use (Navigation)	93%	Very Practical
Display	93%	Very Practical
Content quality	97%	Very Practical
Student Interest	95%	Very Practical
Average value of practicality	**95%**	**Very Practical**
Conclusion	**Textbooks can be used**	

The average value of teachers' responses to textbooks was 95%, categorized by the practicality criteria for assessing the textbooks that were developed as very practical and the science and science textbooks based on local Bugis Indigenous wisdom that were developed could be used for learning.

Furthermore, questionnaires were distributed to 192 students after the learning was completed, students filled in response questionnaires as input or material for improving textbooks developed through student questionnaire sheets that were distributed. The responses given by students were then analyzed by calculating the average value for each aspect. The results of obtaining the average practicality value for each respondent (student) can be seen in the table below.

Table 9. Results of Student Response Questionnaires in Field Trials

Rated Aspect	Practical Value	Category
Ease of use (Navigation)	89%	Very Practical
Display	92%	Very Practical
Content quality	94%	Very Practical
Student Interest	93%	Very Practical
Average value of practicality	**92%**	**Very Practical**
Conclusion	**Textbooks can be used**	

Based on Table 8, the results of field trials obtained an average of 92%. In the Ease of Use (navigation) aspect, the textbook ease indicator reached an average value of 0.89 or 89%. These results showed that students did not experience difficulties in using the IPAS textbook

based on local Bugis Indigenous wisdom because the instructions in the book were clear. The display aspect obtained an average value of 0.92 or 92%. These results showed that the appearance of the science textbook based on local Bugis customary wisdom was very clear in the writing, symbols, images and background presented. Apart from that, the images presented were also appropriate to the material, so they can generate interest in the textbook. The quality aspect of the material content (content quality) obtained an average value of 0.94 or 94%. This shows that the majority of students after using science and technology textbooks based on local Bugis customary wisdom find it easier to understand the material discussed so that students understand it more easily. the question given. The interest aspect with indicators of students' interest in using science and science textbooks reached an average value of 0.93 or 93%. These results showed that the textbooks developed helped make it easier for students to understand the material. Apart from that, students also think that by using the textbooks developed they are more enthusiastic about learning (Yusuf et al., 2022) (Kadir, 2021; Pendidikan et al., n.d.).

Based on the results of the questionnaire, there have been no major revisions to the textbook development product because the textbook has consistently received a positive response from users, with the criteria "very practical", and thus it can be concluded that the science and science textbook product based on the local wisdom of the Bugis Customs developed has the practical value is very good and the textbook can be used. Textbooks based on local wisdom provide a more relevant learning context for students. Local wisdom textbooks allow students to get to know and appreciate the culture and traditions in their environment. Understanding local wisdom helps students form an identity that is in line with their cultural values.

Conclusion

Based on the findings of this development research, the IPAS textbook based on local Bugis Indigenous wisdom that was developed is valid, both in terms of material, language and media design used. The textbooks being developed are considered to be able to encourage an increase in students' understanding of the learning material of science and science textbooks based on local wisdom.

Recommendation

From the results of this research, there are things that can be recommended for further research, namely the process of implementing local culture, which is an effort to develop a learning process based on the potential of the local area. With this foundation, learning outcomes and output will likely produce stent who have character and integrity as cultured Indonesian people.

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References

Aminin, S., & Huda, M. (2018). Article ID: IJCIET_09_04_018-Available online at Insights from Language Learning and Literature. *International Journal of Civil Engineering*

and Technology, 9(4), 157–174. http://iaeme.com/Home/issue/IJCIET?Volume=9&Issue=4http://iaeme.com

Andayani, Y., Anwar, Y. A. S., & Hadisaputra, S. (2021). Pendekatan Etnosains dalam Pelajaran Kimia Untuk Pembentukan Karakter Siswa: Tanggapan Guru Kimia di NTB. *Jurnal Pijar MIPA*, 16(1), 39–43. https://doi.org/10.29303/jpm.v16i1.2269

Annisa, M., Abrori, F. M., Prastitasari, H., & Asrani, A. (2021). Kajian Etnosains Berdasarkan Aspek Sosio-Kultural pada Lahan Basah di Kalimantan Selatan (Studi Etnobiologi dan Potensinya dalam Pembelajaran di Sekolah Dasar). *Jurnal Basicedu*, 5(6), 5906–5915. https://doi.org/10.31004/basicedu.v5i6.1752

Branch, R. M. (2009). Instructional Design-The ADDIE Approach. New York: Springer.

Dinurrohmah, S., Sari, G. M. A., Wisutama, R. A., Sulaeman, N. F., & Nuryadin, A. (2023). Potensi Pembelajaran Berbasis Etnosains dalam Buku Ajar Kurikulum Merdeka IPA SMP Kelas VII. *Kappa Journal*, 7(2), 184–192. https://doi.org/10.29408/kpj.v7i2.12254

Fahrudin, D., Saputro, S., & Sarwanto. (2023). Ethnoscience In Science Learning Research Trend: A Systematic Literature Review From 2013-2022. *Jurnal Penelitian Pendidikan IPA*, 9(8), 458–467. https://doi.org/10.29303/jppipa.v9i8.3813

Ferdianto, F. (2018). Pengembangan Bahan Ajar Media Pembelajaran Berbasis Kearifan Lokal Mahasiswa Pendidikan Matematika. 2(1), 37–47.

Fisika, J., Matematika, F., Ilmu, D., & Alam, P. (2019). Analisis Konten Buku Teks Fisika SMA/MA Kurikulum 2013 pada Pokok Bahasan Alat Optik Nurul Shofia, Ngurah Made Dharma Putra, Siti Wahyuni. In Unnes Physics Education Journal Terakreditasi SINTA (Vol. 8, Issue 2). http://journal.unnes.ac.id/sju/index.php/upej

Fisika, P., & Hamzanwadi, F. U. (2017). Pengaruh Model Pembelajaran Inkuiri Berbasis Kearifan Lokal Terhadap Kemampuan Berpikir Kritis Siswa.

Hidayatulloh, F., Roviati Jurusan Pendidikan Biologi, E., & Syekh Nurjati Cirebon, I. (n.d.). SCIENTIAE EDUCATIA Volume 3 Nomor 2 Desember 2014 Penerapan Pembelajaran Berbasis Sains Lokal Melalui Budaya Minum Jamu Untuk Meningkatan Hasil Belajar Siswa Pada Materi Jaringan Tumbuhan Di Kelas XI MA Darul Falah Kabupaten Indramayu.

Ismail, M., Supeno, S., & Rusdianto, R. (2024). Development of Web-Based Modules to Improve Digital Literacy and Learning Outcomes in Science Learning. *Jurnal Paedagogy*, 11(3), 451-461.

Isra, M., Tahir, M., Zain, M. I., & Istiningsih, S. (2022). Pengembangan Bahan Ajar Berbasis Kearifan Lokal Tema: keunikan Daerah Tempat Tinggalku Siswa. Journal of Classroom Action Research, 5(2). https://doi.org/10.29303/jcar.v5i2.3139

Jamaluddin, J., Hajawa, H., Hasanuddin, H., Daud, M., Naufal, N., & Nirwana, N. (2023). KECAMATAN ANGGERAJA KABUPATEN ENREKANG. https://doi.org/10.2429/fces01

Journal, K., Yuliani, H., & Raya Jl GObos, P. (2021). | |128 Penerapan Problem Based Learning (PBL) dengan Pemberian Biografi Ilmuwan Pada Mata Kuliah Fisika Dasar I: Dampak Sikap Ilmiah dan Motivasi belajar (Vol. 5, Issue 1). http://e-journal.hamzanwadi.ac.id/index.php/kpj/index

Kadir, Y. (2021). Pojiale: Another side of the Buginese. ETNOSIA : Jurnal Etnografi Indonesia. https://doi.org/10.31947/etnosia.v6i2.19423

Kania, N., & Mulyani IAIN Syekh Nurjati Cirebon, A. (n.d.). [November 2013] Jurnal Scientiae Educatia Volume 2 Edisi 2 Penerapan Pembelajaran Biologi Berbasis

Sains Lokal Melalui Budaya Paraji Terhadap Hasil Belajar Siswa Pada Pokok Bahasan Sistem Reproduksi Kelas XI Di SMANegeri 1 Jatiwangi.

Kornhaber, R., Walsh, K., Duff, J., & Walker, K. (2016). Enhancing adult therapeutic interpersonal relationships in the acute health care setting: An integrative review. In Journal of Multidisciplinary Healthcare (Vol. 9, pp. 537–546). Dove Medical Press Ltd. https://doi.org/10.2147/JMDH.S116957

Lightner, A. D., Heckelsmiller, C., & Hagen, E. H. (2021). Ethnoscientific expertise and knowledge specialisation in 55 traditional cultures. Evolutionary Human Sciences, 3. https://doi.org/10.1017/ehs.2021.31

Lubis, M. F., Sunarto, A., & Walid, A. (2021). Pengembangan Modul Pembelajaran Ipa Berbasis Etnosains Materi Pemanasan Global Untuk Melatih Kemampuan Literasi Sains Siswa SMP. 12(2), 206–214. https://doi.org/10.31764

Mumpuni, K. E., Susilo, H., & Rohman, F. (n.d.). Seminar Nasional XI Pendidikan Biologi Fkip Uns 825 Potensi Tumbuhan Lokal Sebagai Sumber Belajar Biologi The Potential of Local Plants as a Source of Learning Biology.

Ningsih, P., Hamzah, B., & Said, I. (2020). Ethnoscience Knowledge of Indigenous Community in Sigi District-Central Sulawesi. Journal of Physics: Conference Series, 1521(4). https://doi.org/10.1088/1742-6596/1521/4/042088

Nur Afinni Dwi Jayanti, U., Susilo, H., & Suarsini, E. (2017). Analisis Kebutuhan Bentuk Sumber Belajar dan Media Pembelajaran Biologi Berbasis Potensi Lokal untuk Kelas X SMA di Provinsi Lampung. In IPA Pascasarjana UM (Vol. 2).

Nyoman Sri Putu Verawati, N. (2023). Metode Resitasi dengan konteks Kearifan Lokal untuk Menuntaskan Hasil Belajar Mahasiswa Calon Guru Fisika. *In Kappa Journal* (Vol. 7, Issue 1). Pendidikan Fisika FMIPA Universitas Hamzanwadi. http://e-journal.hamzanwadi.ac.id/index.php/kpj/index

PISA 2009 Assessment Framework Key competencies in reading, mathematics and science Programme for International Student Assessment. (2009).

Putra, P. D. A., Yusmar, F., Kasah, I. J., Handayani, R. D., & Fadzil, H. M. (2024). Evidence-Based Reasoning: Evaluating Daily Experiences In The Engineering Design Classroom For Middle School Students. Jurnal Pendidikan IPA Indonesia, 13(1), 29–39. https://doi.org/10.15294/jpii.v13i1.49124

Putu Verawati, N. N. S., Harjono, A., Wahyudi, & Gummah, S. (2022). Inquiry-Creative Learning Integrated with Ethnoscience: Efforts to Encourage Prospective Science Teachers' Critical Thinking in Indonesia. International Journal of Learning, Teaching and Educational Research, 21(9), 232–248. https://doi.org/10.26803/ijlter.21.9.13

Roshayanti, F., Siswanto, J., & Saipul Hayat, M. (2020). Analisis kebutuhan bahan ajar berbasis kearifan lokal budidaya nanas madu belik Article Info ABSTRACT. Jurnal Kualita Pendidikan, 1(3), 2774–2156.

Rusilowati, A., Hidayah, I., Nugrahani, R., Abidin, Z., Hutagalung, F. D., Sofchah, T., & Ariyanti, S. W. (2024). Child-Friendly School And Its Relationship With The Merdeka Curriculum In Forming The Students' Character Through Science Learning. Jurnal Pendidikan IPA Indonesia, 13(1), 137–146. https://doi.org/10.15294/jpii.v13i1.44482

Sari, F. P., Maryati, M., & Wilujeng, I. (2023). Ethnoscience Studies Analysis and Their Integration in Science Learning: Literature Review. Jurnal Penelitian Pendidikan IPA, 9(3), 1135–1142. https://doi.org/10.29303/jppipa.v9i3.2044

Vol. 12 No. 1 : January 2025
E-ISSN: 2722-4627
pp. 1-11

Thiagarajan, Sivasailam, dkk. (1974). *Instructional Development for Training Teachers of Exceptional Children*. Washinton DC: National Center for Improvement Educational System.

Yakob, M., & Mauliza, dan. (2018). KAJIAN ASPEK NILAI KARAKTER PADA BUKU AJAR IPA. In KATALIS Jurnal Pendidikan Kimia dan Ilmu Kimia (Vol. 1, Issue 1)

Yolanda Christanty, A., & Dewi Kurniasih, M. (n.d.). Pengembangan Media Pembelajaran Kartu Identifikasi Lumut Berbasis Potensi Lokal. NEURON (JOURNAL OF BIOLOGICAL EDUCATION, I-Nomor I, 2021. https://doi.org/10.14421/neuron.2021.11-02

Yulinda Antika, V., Dinurrohmah, S., Fitriyah Sulaeman, N., Nuryadin, A., & Subagiyo, L. (2022). A Content Analysis of Indonesian Science Curriculum for Junior High School in the Topic Climate Change Analisis Konten Kurikulum IPA SMP Indonesia Pada Pokok Bahasan Perubahan Iklim. https://doi.org/10.30872/pmsgk.v3i0.1628

Yusuf, M., Nahdhiyah, N., & Marjuni, K. N. (2022). Building Character of Bugis Community in Bone From The Perspective of Quran and Local Wisdom. El Harakah: Jurnal Budaya Islam, 24(2), 193–220. https://doi.org/10.18860/eh.v24i2.17047

Zaenal, M., Sekolah, A., Agama, T., Binamadani, I., Ghofur, A., Tinggi, S., & Islam Binamadani, A. (2020). MODEL KOMUNIKASI SPIRITUAL TERAPEUTIK DALAM PENDIDIKAN (Sebuah Pendekatan Mengatasi Siswa Bermasalah). In Zaenal Arifin dan A. Ghofur Tarbawi (Vol. 3, Issue 2). http://kamusbahasaindonesia.org/

