

DEVELOPMENT OF THEMATIC HANDOUT MATERIALS BASED ON THE LOCAL WISDOM OF NUTMEG FOR LEARNING

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Abstract

Their perception causes a lack of student interest in learning through printed teaching materials that local wisdom presented in textbooks is not relevant to the local knowledge of their region. In addition, most teachers do not utilize locally-based teaching materials, reducing student involvement in the learning process. This study aimed to develop and assess the feasibility of thematic teaching materials based on local wisdom, evaluate the feasibility of the teaching materials, and Assess teacher responses to the teaching materials. The research method used was Research and Development (R&D) using the ADDIE model, including the stages of analysis, design, development, implementation, and evaluation. During the analysis phase, a needs assessment was carried out to ensure the relevance of local wisdom, especially regarding the material on nutmeg, in the teaching materials. The study subjects were grade IV students of MIN 2 South Aceh. The research instruments included a validation questionnaire from media and material experts and a response questionnaire from teachers and students. The validation results showed that local wisdom-based teaching materials about nutmeg and its benefits were considered feasible, with a score of 75% from media experts and 73% from material experts, categorized as "feasible." Students' responses to the teaching materials showed that the materials were very interesting, with a score of 94.5%, while teachers' responses reached 72%, categorized as "interesting." The implications of this study indicate that the development of locally based teaching materials can significantly increase students' interest and involvement in learning and provide practical guidance for teachers in utilizing materials relevant to the local context.

Keywords: Instructional Materials, Handout, Thematic Learning, Local Wisdom, Nutmeg

INTRODUCTION

Effective education requires teaching materials that are relevant and engaging for students to maximize the learning process and enhance their involvement.¹ In this context, the thematic learning approach is becoming increasingly popular as a method that integrates various subjects through a specific theme as the learning center. This approach aims not only to develop an understanding of academic concepts but also to shape students' character and introduce and preserve local cultural heritage.² Through thematic learning, students can see the connection between the material being studied and their daily lives, deepening their understanding and enhancing their motivation to learn.³

However, many teaching materials currently available do not fully utilize local resources. Many instructional materials overlook local wisdom that can provide additional context and relevance for students.⁴ Research indicates that thematic learning can be more effective when it integrates local culture and traditions, increasing the connection between teaching materials and students' lives and motivating them to be more active in learning.⁵

South Aceh, with its unique cultural heritage and local wisdom, including nutmeg as one of its key products, has significant potential to be integrated into thematic learning. Nutmeg is a spice with a high economic and cultural value that not only introduces students to the rich spice heritage of the archipelago but also fosters an appreciation for the local potential around them.⁶ Integrating nutmeg into thematic teaching materials can make learning more contextual and engaging and enhance students' motivation and learning effectiveness.⁷

Preliminary studies at MIN 2 South Aceh reveal that the current printed teaching materials do not optimally utilize the local wisdom of Aceh, resulting in lesson content feeling less relevant to students' daily lives.⁸ This highlights the need to develop more contextual and locally-based teaching materials to improve the quality of education. This research aims to develop handout materials based on local wisdom, utilizing nutmeg as the main topic, using the ADDIE model, which includes the stages of analysis, design, development, implementation, and evaluation to produce relevant and effective teaching materials. The feasibility of the materials will be assessed through feedback from teachers

¹ K. Smith, R., Johnson, E., & White, 'Utilizing Local Resources in Curriculum Development: A Focus on Regional Education', *International Journal of Educational Development*, 29.5 (2021), pp. 321–35.

² P. Jones, A., & Brown, 'The Role of Thematic Learning in Enhancing Student Engagement: An International Perspective.', *Journal of Curriculum Studies*, 40.4 (2022), pp. 480–95.

³ J. Lee, S., & Kim, 'Educational Strategies for Integrating Local Culture in Thematic Learning', *Educational Research Review*, 18.1 (2023), pp. 45–60.

⁴ H. Wang, L., & Zhang, 'Challenges and Opportunities in Incorporating Local Knowledge into School Education', *Global Education Review*, 24.2 (2021), pp. 103–19.

⁵ T. Miller, C., Zhang, Y., & Anderson, 'Promoting Cultural Awareness through Thematic Education: Insights from Recent Studies. *Journal of Educational Psychology*', *Journal of Educational Psychology*, 45.3 (2022), pp. 225–40.

⁶ M. Nguyen, T., Patel, R., & Chen, 'Cultural and Economic Impacts of Spice Integration in School Curricula', *International Journal of Culture and Education*, 34.2 (2023), pp. 95–110.

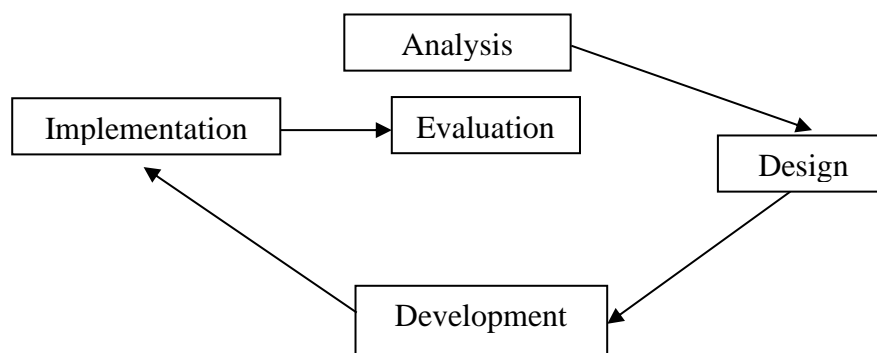
⁷ L. Harris, J., & Walker, 'Integrating Local Knowledge into Educational Materials: A Case Study of Spice Utilization in Curriculum Development', *International Journal of Educational Research*, 56.2 (2022), pp. 150–62.

⁸ Smith, R., Johnson, E., & White.

and students, with the hope that this development will enhance the quality of learning and motivate students to appreciate better and preserve their local wisdom.⁹

RESEARCH METHODS

This research employs the Research and Development (R&D) approach with the ADDIE model,¹⁰ a systematic and structured development model for designing instructional materials. This model encompasses five main stages: analysis, design, development, implementation, and evaluation. The following is a schematic flow of the ADDIE model as depicted in the diagram below:



Picture 1. Flow Scheme of the ADDIE Model Development

The research involves several steps: analysis (which includes problem identification, curriculum analysis, student needs assessment, learning concept, evaluation, and material suitability), design (which involves formulating objectives, classifying students, planning activities, and selecting media), development (which includes realizing the product design and validation), implementation (which involves applying the instructional materials in the classroom and observing their use to assess effectiveness and student engagement), and evaluation (which includes collecting data from the validation of instructional materials and responses from teachers and students using questionnaires).

The research was conducted in the fourth grade at MIN 2 South Aceh, with subjects including lecturers, teachers, and fourth-grade students. The research object is the development of thematic instructional materials based on local wisdom at MIN 2 South Aceh, with data sources comprising primary data (questionnaires for teachers) and secondary data (journals and archives from MIN 2 South Aceh).

The research instruments used include validation sheets and questionnaires, such as media and material validation sheets, as well as teacher and student response questionnaires. Data collection techniques involve the procedures for developing instructional materials, providing validation assessment sheets, and using needs analysis sheets.

Data analysis is performed by describing the design process of instructional materials, analyzing the validation results, and evaluating teacher and student responses using specific criteria to determine the feasibility and attractiveness of the developed materials.

The analysis of validation data from media and material experts is calculated using the percentage formula:

⁹ Jones, A., & Brown.

¹⁰ R. M. Branch, *Instructional Design: The ADDIE Approach*, 2022.

$$\text{percentage} = \frac{\text{Total score obtained}}{\text{Maximum score}} \times 100\% \text{ }^{11}$$

Assessment criteria from media and material experts are categorized as follows:

Table 1. Media Validation Assessment Criteria¹²

Score	Assessment Criteria
1	Very poor assessment/very inappropriate (not valid)
2	Fairly good assessment/fairly appropriate (sufficiently valid)
3	Good assessment/appropriate (valid)
4	Very good assessment/very appropriate (highly valid)

The percentage results from the validation of instructional materials are categorized into the following media feasibility criteria:

Table 2. Quality Criteria for Instructional Materials¹³

No	Fit Index	Criteria	Decision
1	$0,81 < x \leq 1,00$	Very Suitable	All elements assessed are very suitable, and there are no deficiencies with the teaching materials, so that they can be used effectively.
2	$0,62 < x \leq 0,81$	Suitable	Despite minor deficiencies, all items are considered suitable and can be used as teaching materials with some justification.
3	$0,43 < x \leq 0,62$	Less Suitable	If all items in the item assessed are less suitable, with few or many deficiencies in this product, justification must be used as teaching materials.
4	$0,25 < x \leq 0,43$	Not Suitable	If every item in the element assessed is considered unsuitable and there are deficiencies in this product, justification is highly needed for it to be usable as teaching materials.

The analysis of teacher and student responses uses the percentage formula:
 Percentage Formula:

$P = \frac{F}{N} \times 100 \%$, where P = percentage of responses, F = frequency of responses, and N= total number of respondents.

The results of the attractiveness analysis of the instructional materials based on responses from teachers and students are categorized as follows:

¹¹ M. Hadi, S., dan Zulkifli, 'Metode Analisis Data Validasi Dengan Rumus Persentase Untuk Penilaian Kualitas Bahan Ajar', *International Journal of Educational Research*, 15.2 (2022), pp. 215–30.

¹² S. Suryani, S., & Munir, 'Evaluasi Validitas Media Pembelajaran: Pendekatan Skala Likert Dan Skala Persentase.', *Journal of Educational Research and Practice*, 15.2 (2023), pp. 143–58.

¹³ S Yuliana, E., dan Munir, "Evaluasi Validitas Media Pembelajaran: Pendekatan Skala Likert Dan Skala Persentase', *Journal of Educational Research International*, 16.1 (2023), pp. 75–89.

Table 3. Interpretation Criteria of Attractiveness ¹⁴

Assessment	Interpretation Criteria
$80\% < x \leq 100\%$	Very attractive
$60\% < x \leq 80\%$	Attractive
$40\% < x \leq 60\%$	Moderately attractive
$20\% < x \leq 40\%$	Not attractive
$0\% \leq x \leq 20\%$	Very unattractive

Explanation:

- Very Attractive: The instructional materials received a very high positive response from most respondents.
- Attractive: The instructional materials received a positive response, but there is room for improvement.
- Moderately Attractive: The instructional materials received varied responses, with some aspects needing improvement.
- Not Attractive: The instructional materials were less engaging and required revisions to enhance their appeal.
- Very Unattractive: The instructional materials received significant negative responses and need comprehensive improvement.

The results of the instructional materials validation analysis and feedback from teachers and students are used to evaluate the feasibility and attractiveness of the materials comprehensively. Data from validation, which involves assessments by media and material experts, are categorized based on validity criteria to determine the extent to which the instructional materials meet quality standards. Additionally, data from questionnaires collected from teachers and students are processed using the percentage formula to assess the materials' attractiveness level. This data synthesis process involves calculating the frequency of responses relative to the total number of respondents, followed by interpreting the results according to established interpretation criteria. The validation results and feedback are then synthesized to provide a comprehensive overview of the effectiveness of the instructional materials, which will be used to revise and enhance the quality of the materials based on the received recommendations. In this way, it is hoped that the instructional materials will not only meet validity criteria but also be engaging and relevant to students.

RESEARCH RESULT AND DISCUSSION

The research produced a handout on nutmeg and its benefits for fourth-grade students at MIN 2 South Aceh, utilizing the ADDIE model. Below are the details of the results and discussion from this study:

- Needs Analysis

The needs analysis revealed that MIN 2 South Aceh had not yet utilized instructional materials based on local wisdom, resulting in a lack of student understanding of the subject matter. Consequently, the researcher developed a handout integrating local wisdom, specifically about nutmeg, to enhance student comprehension.

¹⁴ R. Siahaan, 'Evaluasi Kemenarikan Bahan Ajar: Metode Dan Kriteria Penilaian.', *Journal of Educational Innovation*, 18.3 (2022), pp. 98–110.

- Instructional Material Design

The design stage involved validation by media and material experts, who indicated that the instructional materials were suitable. The design conducted at the handout preparation stage includes:

a. Cover

The handout cover was designed to capture students' attention with a clear title and engaging visuals, such as "Development of Handout Materials in Thematic Learning Based on Local Wisdom." Below is an image of the handout cover design:



Figure 1. Cover

b. Preface and Table of Contents

The preface conveys the instructional materials' fundamental principles, including the content's significance and the author's expectations for the use of the materials. The table of contents is the section that organizes the pages and provides page numbers as a guide for readers. The following image illustrates the design of the preface and table of contents:

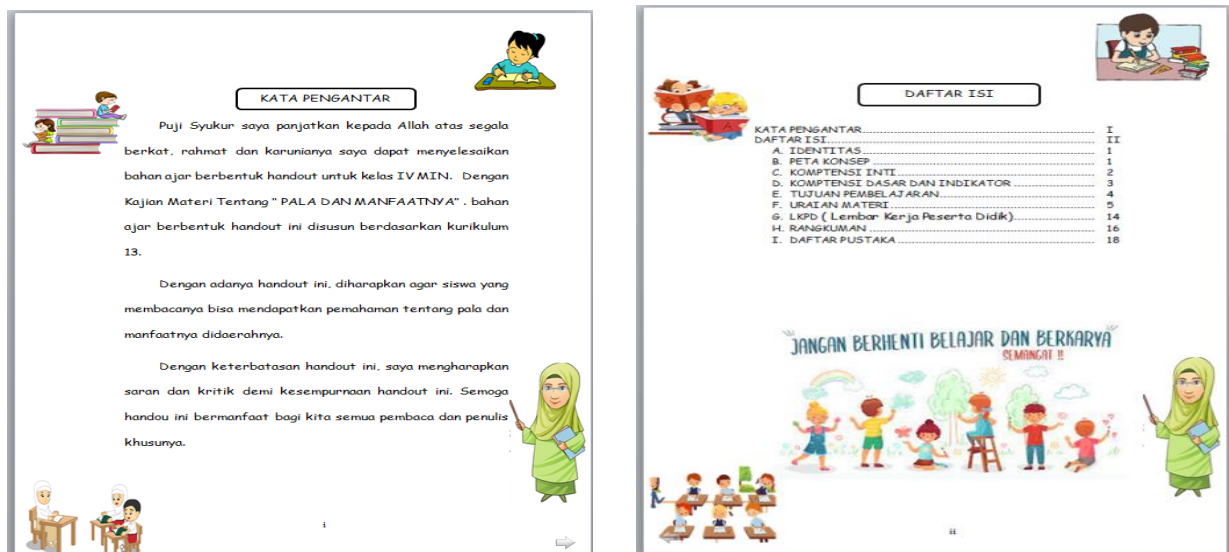


Figure 2. Foreword

c. Identity and Concept Map

The identity section includes information such as the school, grade, theme, and subject matter, while the concept map visually represents the material's structure.

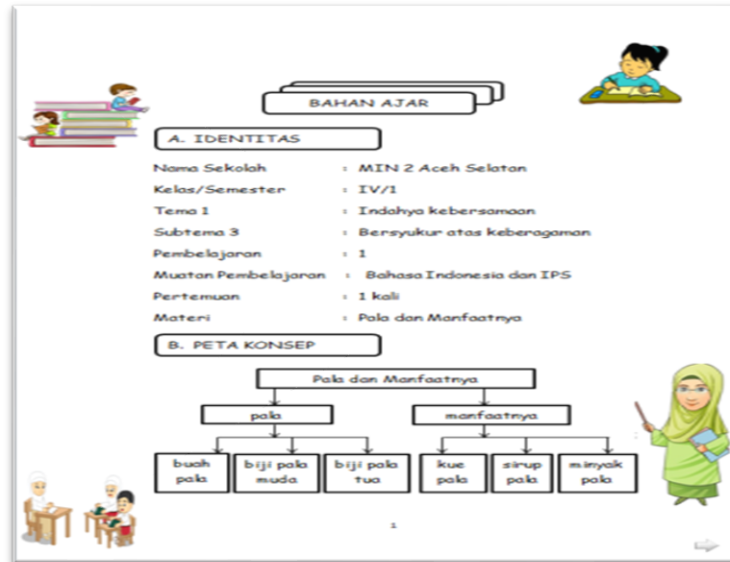


Figure 3. Identity and Concept Map

d. Core Competencies and Basic Competencies

This section presents the Core Competencies (KI) and Basic Competencies (KD) related to the material on nutmeg and its benefits, including relevant indicators.

Figure 4. Core Competencies and Basic Competencies

After the development of the instructional materials, evaluations were conducted by media and material experts. Based on feedback from the evaluators, several revisions were

made. The following table compares the design before and after revisions based on the validators' suggestions.

Table 4. Pages of Instructional Materials: Basic Competencies and Indicators

Media design before revision	Media design after revision







Content experts found indicators that were not quite appropriate in the initial design and were difficult for learners to understand. The suggestion is to add KD 3.2 in the indicator stage to enhance the clarity and usefulness of the teaching material.

Table 5. Section of Learning Objectives Page

Media design before revision	Media design after revision

Content experts found that the learning objectives in numbers 3 and 4 before revision were inappropriate and difficult for learners to understand. The suggestion is to add KD 3.2 to learning objectives 3 and 4 to enhance the clarity and description of the teaching material.

Table 6. Section of Teaching Material Page - Material Description

Media design before revision	Media design after revision
<p>F. URATAN MATERI Sub 1 Ayo Membaca</p> <p>Pengertian Pala Tanaman ini merupakan tanaman keras yang dapat berumur lebih dari 100 tahun dan dapat ubuh dengan baik di daerah tropis. tanaman pala rata rata mulai berbuah umur 5-6 tahun. Setelah mencapai umur 10 tahun produksi buahnya mulai meningkat hingga mencapai optimum pada umur rata rata 25 tahun. Batang pala memiliki dua jenis ada yang jantan dan ada yang betin, pala jantan hanya memiliki bunga, saja tidak menghasilkan buah dan pala betina akan menghasilkan buah. Jangka waktu pertumbuhan buah mulai dari persarian hingga tua tidak lebih dari 10. Batang tanaman pala tumbuh mencapai ketinggian lebih dari 18-20 meter. Tumbuhnya tegak dengan</p>  <p>Gambar 1.1 Batang Pala</p>	<p>F. URATAN MATERI Sub 1 Ayo Membaca</p> <p>Pengertian Pala Tanaman ini merupakan tanaman keras yang dapat berumur lebih dari 100 tahun dan dapat ubuh dengan baik di daerah tropis. tanaman pala rata rata mulai berbuah umur 5-6 tahun. Setelah mencapai umur 10 tahun produksi buahnya mulai meningkat hingga mencapai optimum pada umur rata rata 25 tahun. Batang pala memiliki dua jenis ada yang jantan dan ada yang betina, pala jantan hanya memiliki bunga saja tidak menghasilkan buah. M bunga dan mulai bunga betina 1-3. Jangka waktu pertumbuhan buah mulai dari persarian hingga tua tidak lebih dari 10. Batang tanaman pala tumbuh mencapai ketinggian lebih dari 18-20 meter. Tumbuhnya tegak dengan</p>  <p>Gambar 1.1 Batang Pala</p>
<p>bentuk berbonggol - bonggol, batang pokok memiliki cabang primer yang hampir serupa. Adapun bagian bagian dari tanaman pala yaitu buah pala, biji pala yang matang dan pala muda.</p> <p>1. Buah pala Buah pala berbentuk bulat, dengan ujung meruncing. Beberapa isinya berkulit licin, berdaging dan cukup mengandung air. buah pala yang kecil atau muda akan berwarna hijau jika sudah matang buah akan berwarna kuning dan hijau berbelah dua. Angka waktu pertumbuhan buah pala dari penyerbukan sampai waktu panen pertama waktu sekitar sembilan bulan.</p> <p>2. Biji pala yang matang Biji pala yang sudah matang akan berwarna merah dan mengeras, bunganya berwarna merah, buah pala nya sudah matang atau kuning dan kulit dalam pala akan berwarna coklat. jika terlalu matang, kulit buah akan membelah dengan sendirinya.</p>  <p>Gambar 1.2 Buah Pala</p>	<p>bentuk berbonggol - bonggol, batang pokok memiliki cabang primer yang hampir serupa. Adapun bagian bagian dari tanaman pala yaitu buah pala, biji pala yang matang dan pala muda.</p> <p>1. Buah pala Buah pala berbentuk bulat, dengan ujung meruncing. Beberapa isinya berkulit licin, berdaging dan cukup mengandung air. buah pala yang kecil atau muda akan berwarna hijau jika sudah matang buah akan berwarna kuning dan hijau berbelah dua. Angka waktu pertumbuhan buah pala dari penyerbukan sampai waktu panen pertama waktu sekitar sembilan bulan.</p> <p>2. Biji pala yang matang Biji pala yang sudah matang akan berwarna merah dan mengeras, bunganya berwarna merah, buah pala nya sudah matang atau kuning dan kulit dalam pala akan berwarna coklat. jika terlalu matang, kulit buah akan membelah dengan sendirinya.</p>  <p>Gambar 1.2 Buah Pala</p>
<p>Biji pala matang</p> <p>3. Biji pala muda Biji pala muda masih berwarna putih atau hijau dan belum mengeras, bunganya berwarna putih, buah pala nya yang masih muda banyak mengandung air dan kulit dalam pala masih berwarna putih atau kuning.</p>  <p>Gambar 1.4 Biji pala muda</p>	<p>Biji pala matang</p> <p>3. Biji pala muda Biji pala muda masih berwarna putih atau hijau dan belum mengeras, bunganya berwarna putih, buah pala nya yang masih muda banyak mengandung air dan kulit dalam pala masih berwarna putih atau kuning.</p>  <p>Gambar 1.4 Biji pala muda</p>

buahya lebih keras dan kue pala basah tidak ditaburi gula diatasnya, kue pala kering harus menggunakan pala yang teksturnya lunak. Untuk bentuknya sendiri dapat dijumpai dalam berbagai bentuk seperti model cincang korek api atau bunga tergantung kreatifitas dari yang membuat kue pala tersebut. Manisan pala ini mempunyai rasa yang manis dan pedas.



Kue pala kering bentuk



Kue pala kering bentuk korek api



buahya lebih keras dan kue pala basah tidak ditaburi gula diatasnya, kue pala kering harus menggunakan pala yang teksturnya lunak. Untuk bentuknya sendiri dapat dijumpai dalam berbagai bentuk seperti model cincang korek api atau bunga tergantung kreatifitas dari yang membuat kue pala tersebut. Manisan pala ini mempunyai rasa yang manis dan pedas.



Gambar 2.1 Kue pala kering bentuk bunga



Gambar 2.2 Kue pala kering bentuk korek



Manisan pala

b. Sirup pala

Sirup pala merupakan minuman yang banyak memiliki khasiat untuk memulihkan berbagai penyakit, sebagian masyarakat Aceh Selatan banyak memproduksi sirup pala dan dijadikan sebagai peluang bisnis. Sirup pala ini berwarna kuning bening dan coklat. Sirup pala ini banyak disukai oleh semua orang karena memiliki rasa yang enak dan juga segar.



Manisan pala



Sirup pala



Manisan pala

b. Sirup pala

Sirup pala merupakan minuman yang banyak memiliki khasiat untuk memulihkan berbagai penyakit, sebagian masyarakat Aceh Selatan banyak memproduksi sirup pala dan dijadikan sebagai peluang bisnis. Sirup pala ini berwarna kuning bening dan coklat. Sirup pala ini banyak disukai oleh semua orang karena memiliki rasa yang enak dan juga segar.

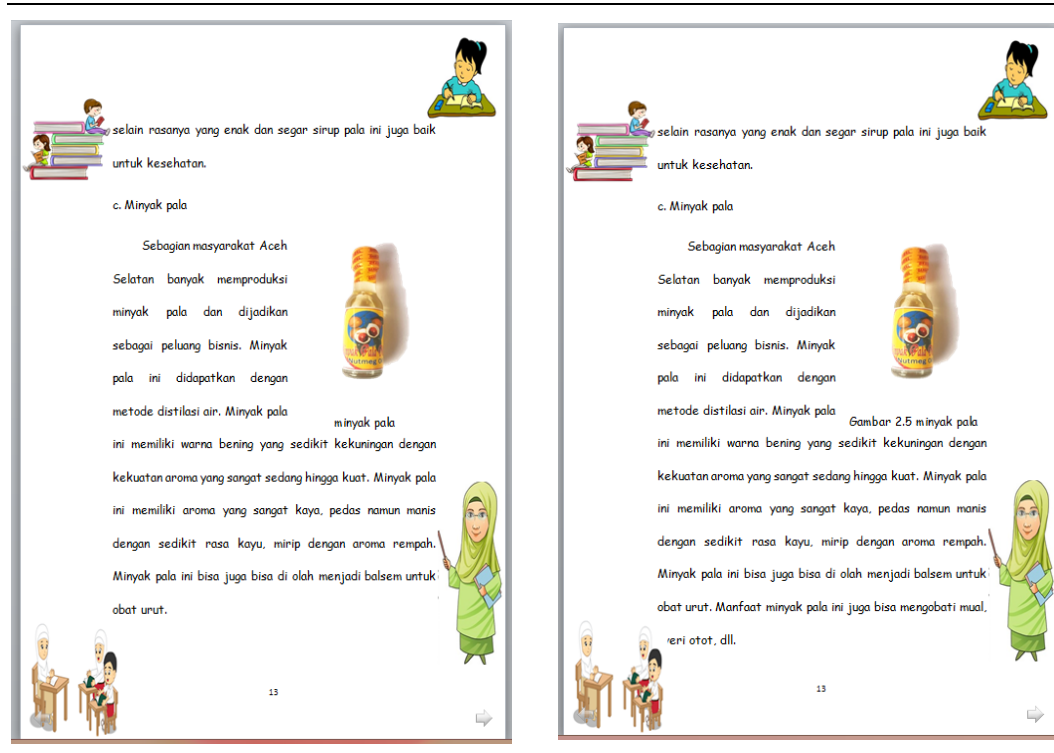


Gambar 2.3 Manisan pala



Gambar 2.4 Sirup pala



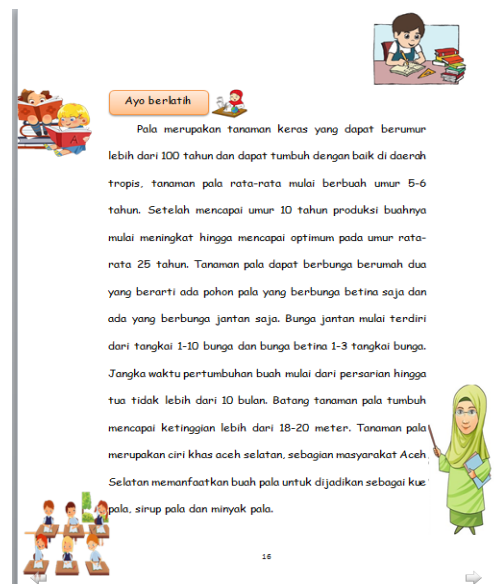
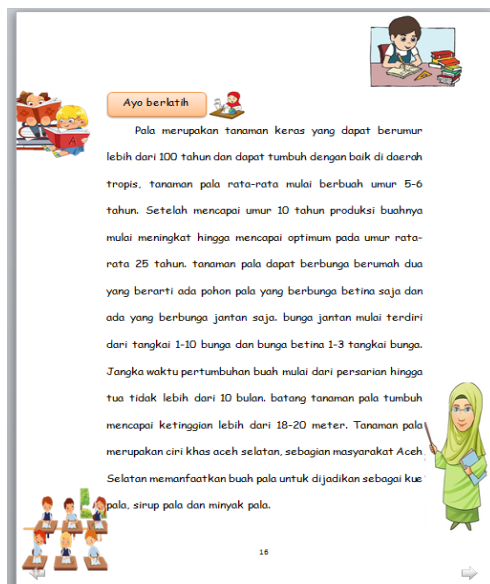


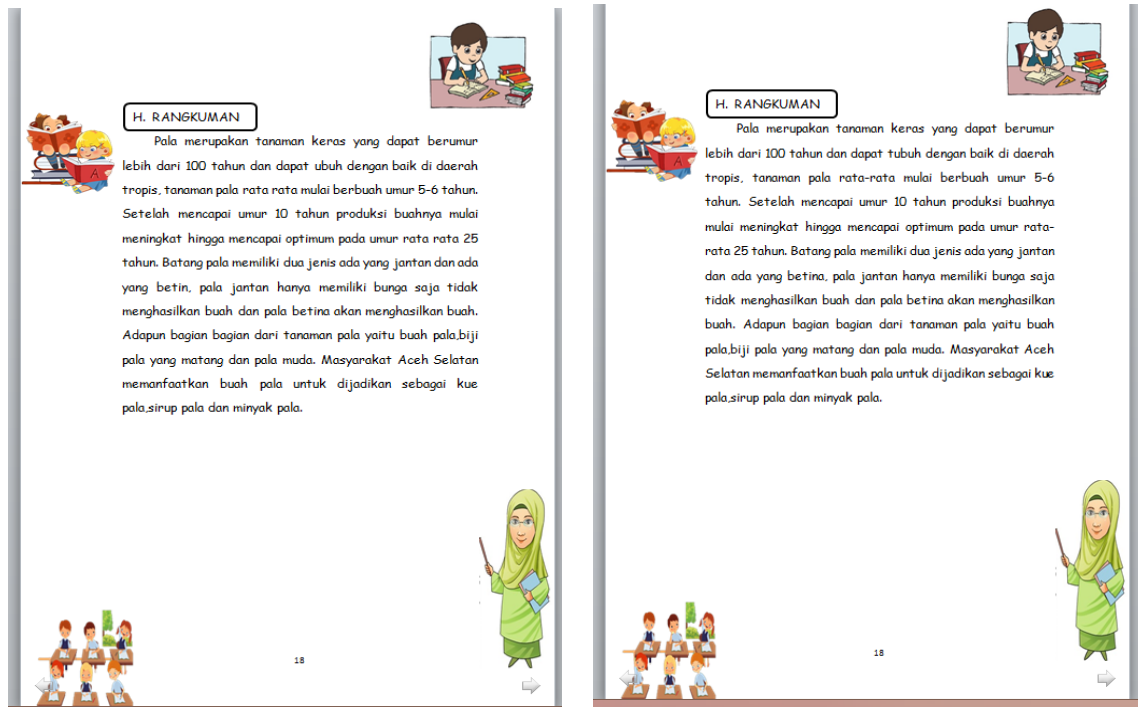
In the initial design, the material description did not include image captions and the benefits of nutmeg oil. Feedback from the media expert validator: Add captions to the images & include the benefits of nutmeg oil.

Table 7. Section of Teaching Material Page - Let's Practice and Summary

Media design before revision

Media design after revision





In the initial design, there were many errors in using Standard Indonesian Spelling (EYD) in the material description. Feedback from the content expert validator is to pay more attention to EYD writing to improve it.

Table 8. Section of Bibliography Page

Media design before revision

Media design after revision



In the initial design, the material description did not include image captions and the benefits of nutmeg oil. The media expert validator suggested adding captions to the images and including the benefits of nutmeg oil.

After revisions, the instructional materials were pilot-tested with one teacher and ten students. The students' responses indicated that the materials received 94,5%, categorized as "Very Attractive," while the teacher's response showed 72% as "Attractive." This demonstrates that the local wisdom-based instructional materials are suitable for use in the learning process.

Evaluation was conducted to ensure the validity of the instructional materials, with the validity results showing that the materials are feasible. The positive responses from both students and teachers indicate that the local wisdom-based handout is appropriate for use in the learning process at MIN 2 South Aceh.

Based on the research findings, the design stage of the handout instructional materials includes several key elements, such as the cover, preface, table of contents, concept map, and other essential components like core competencies and standards, learning objectives, content descriptions, and exercises. This design aims to ensure that the materials are not only informative but also engaging and aligned with educational standards. Design validation by media and material experts showed percentage scores of 73.33% and 75%, respectively, indicating that the materials are appropriate and meet the established criteria.

The development phase involved pilot testing the handouts with fourth-grade students at MIN 2 South Aceh, which yielded positive results. Students' responses to the handouts reached 94.5%, indicating that the materials were highly engaging. Meanwhile, teacher responses showed a percentage of 72%, also indicating that the handouts are interesting and effective for use in teaching. These findings align with previous research suggesting local wisdom-based instructional materials can enhance student engagement and motivation.¹⁵

Evaluation was carried out by assessing feedback from media and material experts, as well as from teachers and students. The evaluation showed that the instructional materials received a good validity percentage, with media experts scoring 73.33% and material experts scoring 75%. These results indicate that the local wisdom-based materials are suitable for use and have received positive feedback from students and teachers. This study also supports previous research highlighting the importance of using contextually appropriate media to improve teaching effectiveness.¹⁶

Based on the evaluation results, the local wisdom-based instructional materials on nutmeg and its benefits have proven effective in helping teachers deliver engaging and relevant content. The material explanations, complemented by attractive visuals, make learning more enjoyable and less monotonous. This study provides evidence that integrating local wisdom into instructional materials can enhance student understanding and reinforce the relevance of the content to their local context.¹⁷

CONCLUSION

Developing local wisdom-based instructional materials for thematic learning at MIN 2 South Aceh has been deemed suitable based on validation from media experts (73.33%)

¹⁵ L. Smith, T., & Brown, 'Cultural Relevance in Educational Resources: A Study of Primary School Learning Materials', *Educational Resources Journal*, 18.4 (2022), pp. 332–48.

¹⁶ K Johnson, L., & Lee, 'Evaluating the Effectiveness of Contextual Learning Materials in Primary Education', *Educational Evaluation Review*, 29.1 (2022), pp. 45–59.

¹⁷ A Doe, J., & Smith, 'Integrating Local Culture into Educational Materials: Impacts on Student Engagement', *Journal of Educational Research*, 115.3 (2021), pp. 243–58.

and material experts (75%). Pilot testing results showed positive responses from students (94.5%) and teachers (72%), indicating a high level of interest and effectiveness of these materials. However, this study has limitations regarding the number of participants and the scope of the evaluation. Therefore, future research is recommended to involve a larger number of participants and conduct long-term assessments to obtain more comprehensive and in-depth results.

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