

DEVELOPING A MAGAZINE BOOK TO IMPROVE READING SKILLS IN AGRIBUSINESS STUDENTS AT SMK NEGERI 2 RANTAU UTARA

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Abstract

This study aims to design supplementary instructional materials in the form of a recipe-themed magazine tailored for vocational students in the Agribusiness and Agricultural Product Processing program. Conducted between February and March 2025, the research employed the ADDIE development framework, which comprises the Analysis, Design, Development, Implementation, and Evaluation phases. The participants included 20 Grade XI students. Data collection tools consisted of validation forms, pre- and post-tests, interview protocols, and observation checklists. The material was validated for educational use based on expert validation scores, which exceeded 62%. Its impact on reading skill improvement was measured through pre- and post-assessments. The findings confirmed the effectiveness of the developed material. Validation results from media experts (88.28% and 85%) and language experts (86%) indicated high feasibility. Students' reading scores improved from a pre-test average of 65.9 to a post-test average of 71.3, affirming the magazine's potential as an effective learning support.

Keywords: ADDIE, Magazine book, Development, Reading skill

INTRODUCTION

In the era of globalization, English proficiency plays a vital role in the development of human resources, especially for students in Indonesia. As English is integrated into the national curriculum from high school to university level, it becomes essential for students to master it to compete internationally (Kusuma, 2019). The goal of English education is to equip students with the necessary skills to participate in global communication.

English language competence comprises four core skills: listening, speaking, reading, and writing. Listening is foundational for language acquisition and supports other language abilities (Mandasari & Aminatun, 2020). Speaking, which demands fluency, vocabulary, grammar, and confidence, is crucial for effective communication (Kuswoyo & Wahyudin, 2017; Mandasari & Aminatun, 2020). Reading is a key academic skill that not only enables students to access written information but also contributes to broader language proficiency (Mutiar Ayu, 2021; Pustaka & Wiedarti, 2019). Writing, similarly, is an indispensable communication skill, especially in academic contexts, allowing students to articulate ideas and information clearly.

Despite its importance, reading is often perceived as monotonous by students, leading to low engagement and underdeveloped reading skills. This has motivated educators and researchers to develop instructional media that better align with students' interests and improve learning outcomes (Aulia et al., 2024). Rose (2018) emphasizes that students frequently struggle with complex texts due to insufficient support, resulting in gaps in comprehension and academic performance. Topkaya and Çelik

(2024) further stress the necessity for students to master academic discourse for effective participation in their studies and future careers.

Reading is not only about decoding text but also about interpreting symbols and visuals to gain knowledge, enjoyment, and interest (Napratilora et al., 2020). It provides students with new experiences and insights, which serve as the foundation for their academic growth (Pardede, 2019). Materials tailored to students' preferences—such as recipe texts or topic-based magazines—can increase motivation and improve their understanding of the content (Dewi, 2020).

The development of innovative, engaging, and need-based materials has proven effective in enhancing student skills. For instance, Wulandari (2024) demonstrated that using a descriptive text handbook developed through the ADDIE model significantly improved students' writing performance by providing focused, relevant, and visually engaging learning materials. This evidence supports the approach of using targeted and contextualized media to address skill deficits in specific language areas.

Recognizing the lack of appealing and interest-based reading resources in vocational high schools, this research aims to develop supplementary material in the form of a magazine. The magazine content is adapted to students' vocational background in Agribusiness and Agricultural Product Processing, providing relevant and engaging content to foster reading interest and improve comprehension. Accordingly, this study is titled “Development of Magazine Book to Improve Reading Skill for Agribusiness and Agricultural Product Processing program at SMK Negeri 2 Rantau Utara.”

METHODOLOGY

This study employs a Research and Development (R&D) approach to develop and validate a magazine-style English reading material designed to improve reading skills among students of the Agribusiness and Agricultural Product Processing department at SMK Negeri 2 Rantau Utara. The R&D model used in this study is the ADDIE model, which stands for Analysis, Design, Development, Implementation, and Evaluation. This model was chosen for its systematic approach to instructional material development, as it has been effectively applied in previous educational product innovations.

Procedure and Research Plan

This research is a Research and Development based on the ADDIE model. This ADDIE development model has a simple, systematic, and measurable nature, is effective, and has been commonly used in the preparation and development of products, tools, media strategies, teaching material, and various other learning activities that involve experts as validators of the product result. ADDIE is a development approach consisting of five stages: Analyze, Design, Develop, Implement, and Evaluate (Smith & Brown, 2019). Setiawan (2020) noted that the ADDIE model offers a straightforward way to structure learning processes applicable in different situations; moreover, the ADDIE model allows for evaluation and revision at every stage, ensuring the final product is valid and reliable.

Table 1. Research method ADDIE

	Process	Outcome And Indicators of Achievement
Analyze	Identify and analyze the student problem and their need	Outcome: identification of the problem Indicators of achievement: acquisition of data from the data from the result of the needs analysis
Design	Designing material and making research instruments	Outcome: draft magazine book Indicator of achievement: Feasibility test by the team of experts
Development	Developing procedure text through testing their effectiveness through assessment	Outcome: feasible magazine book Indicator of achievement: Feasibility test of the magazine by the expert
Implementation	Share the magazine to the student as their additional resource learning	Outcome: Trial result Indicator of achievement: Significant increase of the reading skill ability of the student
Evaluation	Evaluate the effectiveness the magazine used as the additional resource learning	Outcome: Evaluation results (Pre-test and Post-test) Indicator of achievement: Above average students' reading skill

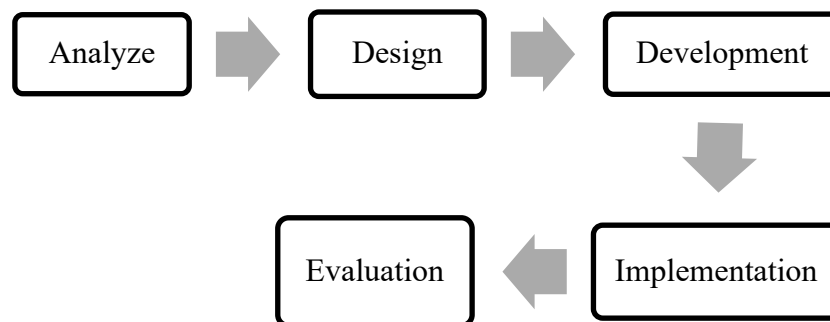


Figure 1. Five Stages of the ADDIE Model (Kristiani, 2024)

Data Analysis Technique

The magazine book that has been designed will then be validated by each material expert, linguist, and design expert. The assessment by these expert was obtained through a questionnaire The data obtained from the distribution of the questionnaire was divided into four main parts, namely: (1) the result of the first stage of data in the

form of evaluation from material experts, (2) the results of the second stage of data in the form of evaluation from linguists, (3) the results of the third stage of data in the form of evaluation from learning media expert, and (4) the results of the fourth stage of data in the form of the results stage of data in the form of the result of trials in small group. The data obtained will be analyzed with qualitative and quantitative descriptive approaches. The qualitative data obtained are comments and suggestions from experts that are used as consideration in the revision of the product developed. Quantitative data was obtained through the percentage of scores obtained from the validation questionnaire of experts. The formula used is:

$$P = \frac{\sum X}{\sum Xi} \times 100\%$$

Information:

P = Percentage

$\sum X$ = Number of answer scores per item

$\sum Xi$ = Total number of answer scores per item

Throughout the development phase, the expert conducted a verification process to assess the alignment of elements and indicators, the appropriateness of material, language used, and the accuracy of the evaluation concept, as well as the gather feedback for refining the instrument. This study involved three expert validators with expertise in assessment and language. Table 2 presents the eligibility scale utilized by the validator to validate the instrument.

Table 2. Interpretation of Eligibility Value (Kristiani, 2024)

Eligibility scale (%)	Criteria
81-100	Very feasible
61-80	Feasible
41-60	Enough feasible
21-40	Unworthy
0-20	Very unworthy

In addition to validity data from experts, quantitative data from pre-test and post-test scores were also obtained, aimed at students, to see the influence and effectiveness of the supplementary learning magazine developed by the researcher. This data will then be analyzed by comparing the results before and after using the magazine. The normality of the data was analyzed, and then to evaluate the data of the results of the pre-test and post-test to determine the effect of treatment on each group, a paired t-test was used. Meanwhile, to compare the final test results between the experimental group and the control group, an independent sample t-test was used to determine whether there was a difference before and after treatment.

The t-calculation formula, according to Wahyudi et al. (2023), is as follows:

t-calculated =

$$\frac{\frac{D}{SD}}{\sqrt{n}}$$

By keeping in mind:

$$Var(s^2) = \frac{1}{n-1} \sum_{i=1}^n (x_i - \bar{x})^2$$

$$SD = \sqrt{var}$$

Description

D = Average difference of measurements 1 and 2

n = Total sample

t = Calculated t value

The interpretation of the formula is

t_{calculated} ≤ t_{table} = then does not differ significantly

t_{calculated} ≥ t_{table} = then differs significantly

RESULT AND DISCUSSION

Result

The research produced a recipe-themed magazine containing various texts about processed agricultural foods, presented in procedural form. This magazine served as an additional learning resource for students to help improve their reading skills. Its development followed the ADDIE model, which included the phases of Analysis, Design, Development, Implementation, and Evaluation.

1. Analysis

The first stage in product development is the analysis phase. This began with a preliminary research stage, which involved observations and initial interviews. During this phase, student learning challenges and needs were identified through interviews with English teachers and their students, as well as classroom observations.

From the teacher interviews, it was revealed that most students struggle with learning English, and only about 10% demonstrate strong learning skills. The preliminary research also showed that a major obstacle in learning English lies in mastering basic skills, particularly vocabulary, which is a key component of reading ability. The lack of sufficient vocabulary was attributed to students' difficulty with memorization.

Learning techniques that are considered difficult for students. And suggestions were also obtained for the development of a recipe magazine book for the content of various bread recipes. Through the information obtained above, additional learning resources are needed to increase student interest and overcome the lack of mastery of student vocabulary. This illustrated recipe magazine book can be one of the solutions whereby

reading or using the recipes with their students can increase their vocabulary without having to memorize.

2. Design

The development stage involved several steps: (1) designing the structure of the recipe-themed magazine book to be developed. (2) Preparation of material, the preparation of this material includes material related to procedural texts, namely the characteristics of the text, the structure of the text, and the examples of the text. And the example of the text. In addition, various food recipes from agricultural processing obtained through various sources are compiled. (3) Content design preparation and content design are carried out using the Canva application.



Figure 2. Magazine Recipe

3. Development

In the development phase, experts conducted verification to assess the alignment of elements and indicators, the appropriateness of the material and language, the accuracy of the evaluation concept, and to gather recommendations for refining the instrument. The experts for the validation in this study are 3 people with experience and expertise in the field of language to analyze the feasibility of its use. Experts also provided feedback, including content recommendations from media specialists to select food types that are uncommon to students, as well as modern dishes to make the material more engaging. A similar development procedure was successfully implemented in a study by Harahap (2024), who developed blog-based *partuturon* materials to enhance elementary students' cultural literacy. Their application of the ADDIE model validated the effectiveness of localized, contextualized, and engaging learning resources. Inspired by their success, this study adopts a parallel structure, emphasizing relevance, engagement, and visual integration in reading materials. The process of development can involve adaptation, adoption, selection, or creation (Smaldino et al., 2019). The choice is determined by the specific requirements of the teaching and learning process. During the material development phase, the source plays a crucial role.

Table 3. Result of the validation material expert

No	Criteria	Score
1	How accurate is the chapter title with the content of the material in each chapter	8
2	How is the compatibility between key concepts and the content of the reading skill aspect	9
3	How appropriate is the learning access and content of the material	9,2
4	Is the description of the material clear	9
5	Clarity of the examples given	9,3
6	Compatibility between tables, charts, images/illustrations and material	9,3
7	The accuracy of the bibliography that can be used as a reference for finding sources that are relevant to the material	8
Total		61,8

Based on the data in Table 3, the percentage of validity of the subject matter expert can be calculated, namely

$$P = \frac{\sum X}{\sum Xi} \times 100\%$$

$$P = \frac{61,8}{70} \times 100\%$$

$$P = 88,28\%$$

Table 1. Result of the validation content expert

No	Criteria	Score
A. Cover Page		
1	How interesting is the media cover	9
2	Images on the cover can add to the reader's interest	8
3	Are the images, colors, and materials on the media appropriate	8
B. Book Content		
4	The suitability of the developed media with the needs of Agribusiness and Agricultural Processed student	9
5	Picture on each chapter is interesting	8
6	How is the media produced compatible with learning outcomes of Agribusiness and Agricultural Processed student	9

Total	51
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Based on the data in Table 4, the percentage of validity from media experts can be calculated as follows:

$$P = \frac{\sum X}{\sum Xi} \times 100\%$$

$$P = \frac{51}{60} \times 100\%$$

$$P = 85\%$$

Table 2. Result of the validation language expert

No	Criteria	Score
A. Cover Page		
1	The writing on the cover corresponds to the EYD	9
2	Are the descriptions on the front and back cover pages easy to understand	8
3	Is the writing in accordance with the teaching material of Agribusiness and Agricultural Processed student	8
B. Preface and Book Content		
4	Is the language used in accordance with the EYD	9
5	Is the language used formal	9
6	Does the language used avoid causing ambiguity	9
Total		52

Based on the data in Table 5, the percentage of validity from language experts can be calculated as follows:

$$P = \frac{\sum X}{\sum Xi} \times 100\%$$

$$P = \frac{52}{60} \times 100\%$$

$$P = 86\%$$

Table 3. Result of the validation expert

Experts	Assessment Percentage	Eligibility Interpretation
Material expert	88,28%	Very feasible
Content expert	85%	Very feasible
Language expert	86%	Very feasible

4. Implementation

After going through the development stage and it was declared that this recipe magazine book is worth using. Then this book was implemented for grade 11 students

total of 20 students. Then, students are given 2 weeks to use the book as an additional learning resource. They can read and understand the material independently and try out the various recipes presented in the recipe book and improve their reading skills. The book is provided as additional learning material, serving not as the main teaching resource but as support for students' independent study at home.

Table 4. Implementation Schedule

No	Date	Activity
1	Thursday, 20 February 2025	Material and book introduction
2	Friday, 21 February 2025	Pre-test
3	Monday, 24 February 2025	Giving books to students
4	Monday, 10 February 2025	Evaluation (Post-test)

On the day of the book distribution, the students seemed enthusiastic about the books distributed. According to students' responses, this book is very interesting and follows their interests. The variety of food recipes in this book is also very interesting for them to try immediately. On the day of the distribution of this book, a pre-test was also carried out. The pre-test was attended by 20 students who also received this book. After 2 weeks of giving the book, an evaluation was carried out, namely with a post-test, which was followed by the students who received the book.

5. Evaluation

To see the effect of the use of the Recipe Magazine book on improving students' reading ability, a pre-test was carried out before the use of the book, and a post-test after the use of the book for 2 weeks. Students' pre-test and post-test scores are presented in the following table

Table 5. Student Pre-test & Post-Test Score

No	Pre-test Score	Post-test Score
1	65	70
2	69	68
3	68	73
4	70	73
5	75	79
6	64	69
7	63	70
8	64	71
9	70	73

10	60	65
11	63	67
12	64	70
13	70	73
14	71	75
15	60	76
16	65	70
17	64	74
18	73	77
19	60	65
20	61	68
Average	65,9	71,3

The two scores were then compared and analyzed with a paired t-test statistical test for the conclusion of seeing a significant difference in students' pre-test and post-test scores. To see the effect of the use of Recipe Magazine books used in improving students' reading skills, a pre-test was carried out before the use of the book, and a post-test after the use of the book for 2 weeks. The two scores were then compared and analyzed with a paired t-test statistical test to conclude seeing significant differences in students' pre-test and post-test scores.

Table 6. The t-paired result

Calculated t value	Table t value	Standard deviation	Mean difference	α	Description
4,07	1,72	1,325	5,555	0,05	$t_{\text{calculated}} < t_{\text{table}}$

Through paired statistical tests, the results showed that there was a significant difference in the results of students' pre-test and post-test scores. The result of the calculated t value is greater than the table t value (0.05). That is calculated t value 4.07 and t table value 1.72. So it can be concluded that there is a significant difference in the results of the pre-test and post-test students that have increased, so the use of the recipe book magazine is effective in improving students' reading skills.

Discussion

The development of the recipe-themed magazine book aimed at improving students' reading skills followed the ADDIE model, which includes the phases of Analysis, Design, Development, Implementation, and Evaluation. In the initial phase, interviews and observations revealed that students' English proficiency was relatively low. According to the English teacher, only 10% of students possessed adequate basic English skills. Furthermore, a significant obstacle in reading comprehension was

students' limited vocabulary mastery, a core component of reading ability (Nation, 2001). In addition, it was observed that vocational students showed a strong interest in practical content, particularly in preparing various types of bread and other foods, highlighting the need for contextual and interest-based learning materials.

Based on these findings, a recipe magazine book was developed using the Canva application, chosen for its user-friendly interface and design flexibility. This is in line with Dewi (2020), who emphasized that learning materials aligned with students' interests, such as recipe texts, can improve motivation and comprehension. Similarly, Wulandari (2024) argued that authentic, contextually relevant materials can significantly enhance language learning, particularly in vocational education.

To ensure its effectiveness and appropriateness, the developed book was validated by several experts, including material experts, media experts, and linguists. The validation results confirmed the book's feasibility as a supplementary learning resource. This supports Tomlinson's (Tomlinson, 2023) assertion that expert validation plays a crucial role in ensuring instructional materials are relevant, accurate, and pedagogically sound.

1. Validity Test by Experts

The validation scores from the three expert groups—material experts, media experts, and linguists—each exceeded 85%. According to Aulia et al.'s (2024), interpretation scale, scores above 85% classify educational materials as “very feasible” for implementation. High validity indices suggest that the content, design, and linguistic accuracy of the agricultural processed product recipe magazine book meet rigorous pedagogical standards (Ary et al., 2010). Expert validation is widely recognized as a critical step in instructional material development; Tomlinson (2023) argues that involving content specialists, media designers, and language reviewers ensures materials are both contextually relevant and pedagogically sound. Similarly, Gall et al. (2007) assert that a product's effectiveness is directly linked to its validation process, as it confirms alignment with learners' needs and curricular objectives.

Moreover, Dewi (2020) found that materials validated by multiple experts not only enhance content reliability but also increase student engagement and comprehension. In vocational contexts—such as the Agribusiness and Agricultural Product Processing program—ensuring that materials are validated by media experts supports visual appeal and usability, while linguistic validation safeguards language appropriateness for learners with limited English proficiency (Nation, 2001). Thus, the magazine book's validation score above 85% indicates it is an effective supplementary resource, corroborating previous studies that link high expert-validation scores with measurable improvements in student reading skills (Wang & Smith, 2013).

2. Evaluation Pre-test and Post Test

In seeing the effectiveness of using magazine book products, pre-tests and post-tests are carried out. The average pre-test score with the post-test showed an increase.

The average pre-test score of 65.9 is seen to increase when compared to the average post-test score of 71.3. This shows that the product that has been developed is effective to be used in improving students' reading skills. In addition, a paired t-test was also carried out to show a comparison of the results of the scores of the two tests.

The results of the paired t-test show that the calculated t-value obtained is greater than the t-value of the table with a confidence level value of 0.05, namely, the t-value of the calculation was obtained as 4.07, which is greater than the t-value of the table with a confidence level of 0.05, which is 1.72. So, it can be concluded that there is a significant difference in students' pre-test and post-test scores related to students' reading ability. Judging from these results, it can be concluded that the use of recipe magazine books for agricultural products has a good effect by improving reading ability seen from the comparison of pre-test and post-test scores of students who have increased.

CONCLUSION

Based on the results obtained through this study, the following conclusions can be drawn: The recipe magazine book for food processed products is developed using the Canva application with the ADDIE method (analysis, design, development, implementation, and evaluation). This magazine book was developed following the Text Procedure material, by presenting various recipes, including bread and drinks, to heavy foods such as *balado* chicken. In addition, procedural text materials are also inserted as learning materials. The validation results from experts show that this book is very suitable to be used as an additional learning tool for students. The results of the feasibility validation of these experts were media experts (88.28%), material experts (85%), and linguists (86%).

The results of the evaluation of the effect of the use of recipe magazines on students' reading ability were carried out by comparing the results of the students' pre-test and post-test after being analyzed also provided significant differences. The results obtained by students through the pre-test and post-test appeared to increase with an average score in the pretest of 65.9 and an average score of 71.3 in the post-test which shows the use of this recipe magazine book is effectively used to improve students' reading ability.

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