



## Development of e-picture story book media based on the Steinberg method with local wisdom to improve vocabulary skills of low-grade students

(Pengembangan media *E-Picture Story Book* berbasis metode *Steinberg* bermuatan kearifan lokal bagi peningkatan keterampilan mengenal kosakata siswa kelas rendah)

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**Abstract:** Beginning reading is an important foundation for mastering reading skills. If students do not achieve the indicators of initial reading skills, they will not be able to master further reading skills. This research is motivated by the learning outcomes of students who have not reached the Minimum Completeness Criteria (KKM) in vocabulary introduction material. The purpose of this study is to evaluate the feasibility and effectiveness of E-Picture Story Book media based on the Steinberg Method and contain local wisdom in improving student learning outcomes related to initial reading skills in grade II of elementary school. The research method used is research and development (R&D) with the Borg and Gall development model. The product validity test was carried out by validators who were material experts and media experts, while grade III elementary school students were used as subjects for product trials. The results of this study show that the media feasibility test obtained a result of 88% with a very feasible predicate, while the feasibility test from material experts obtained a score of 92% with a very feasible predicate. The results of the effectiveness test can be seen from the comparison between the pretest and posttest results which show an improvement, with an average N-Gain of 0.58 and a significance value (2-tailed) of 0.000, which is less than 0.05. The conclusion of the results of this researcher shows that overall, the E-Picture Story Book media Based on the Steinberg Method Loaded with Local Wisdom is declared feasible and effective in improving the vocabulary skills of grade III students of SDN Sangge. The conclusion of this study shows that there is an increase in learning outcomes in vocabulary recognition skills in grade II students.

**Keywords** E-picture story book media, Initial reading, Local wisdom, Steinberg method, Vocabulary recognition skills

**Abstrak:** Membaca permulaan adalah fondasi penting untuk menguasai keterampilan membaca. Jika siswa tidak mencapai indikator keterampilan membaca permulaan, mereka tidak akan dapat menguasai keterampilan membaca yang lebih lanjut. Penelitian ini dilatarbelakangi oleh hasil belajar siswa yang belum mencapai Kriteria Ketuntasan Minimal (KKM) pada materi pengenalan kosakata. Tujuan dari penelitian ini adalah untuk mengevaluasi kelayakan dan efektivitas media E-Picture Story Book yang berbasis Metode Steinberg dan mengandung kearifan lokal dalam meningkatkan hasil belajar siswa terkait keterampilan membaca permulaan di kelas II sekolah dasar. Metode penelitian yang digunakan adalah penelitian pengembangan atau Research and Development (R&D) dengan model pengembangan Borg and Gall. Uji validitas produk dilakukan oleh validator yang merupakan ahli materi dan ahli media, sedangkan siswa kelas III SD dijadikan subjek untuk uji coba produk. Hasil penelitian ini menunjukkan bahwa uji kelayakan media mendapatkan hasil 88% dengan predikat sangat layak, sementara uji kelayakan dari ahli materi memperoleh skor 92% dengan predikat sangat layak. Hasil uji keefektifan terlihat dari perbandingan antara hasil pretest dan posttest yang menunjukkan peningkatan, dengan rata-rata N-Gain sebesar 0,58 dan nilai signifikansi (2-tailed) sebesar 0,000, yang kurang dari 0,05. Simpulan dari hasil peneliti ini menunjukkan bahwa secara keseluruhan media *E-Picture Story Book* Berbasis Metode *Steinberg* Bermuatan Kearifan Lokal dinyatakan layak dan efektif digunakan dalam meningkatkan keterampilan mengenal kosakata siswa kelas III SDN Sangge. Simpulan dari hasil penelitian ini menunjukkan bahwa terjadi peningkatan hasil belajar dalam keterampilan mengenal kosakata pada siswa kelas II.

**Kata Kunci** Membaca permulaan, Media *E-picture story book*, Metode *steinberg*, Kearifan lokal, Keterampilan mengenal kosakata

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## INTRODUCTION

The initial phase of engaging in reading activities is known as beginning reading. This aligns with the view of [Mardani et al., \(2022\)](#), who stated that beginning reading marks the first step before children are able to read. Early reading serves as a foundational skill for acquiring further skills, and thus, requires significant attention from teachers [Saputra et al., \(2022\)](#). Vocabulary plays a crucial role in mastering language. According to [Zahro et al., \(2020\)](#), vocabulary encompasses all the words within a sentence and can be developed through teaching materials, instructional resources, or learning media. Vocabulary recognition is also a language skill that requires practice to be effectively mastered [Rachman et al., \(2019\)](#). Furthermore, vocabulary recognition skills can be a key factor in enabling students to actively participate in classroom learning ([Momang et al., 2021](#)).

Based on the researcher's interview with the third-grade teacher at SDN Sangge, Boyolali Regency, it was revealed that students' vocabulary recognition skills are still low. This was evident in their learning outcomes for Indonesian language lessons, specifically in KD 4.3, which involves reporting the use of appropriate Indonesian vocabulary in local languages based on observations of the geographical, economic, social, and cultural aspects of their environment, presented through written, oral, and visual texts. This challenge is also reflected in the Merdeka Curriculum, particularly in phase A of the reading and viewing elements outlined in the CP (Competency Proficiency), where students are expected to fluently read familiar words. However, the learning results in KD 4.3 show that out of thirteen (13) second-grade students, only six (6) students (46%) can read fluently, while seven (7) students (53%) still struggle with reading. Similarly, among ten (10) other second-grade students, only four (4) students (40%) are fluent readers, while the remaining six (6) students (60%) continue to stutter when reading.

[Herawati et al., \(2018\)](#) suggested that vocabulary recognition skills can be categorized into two types: natural skills and skills developed through practice. Additionally, reading skills play a crucial role in helping students gather information necessary for the development of written work [Beauty et al., \(2023\)](#). Vocabulary, as an essential aspect of language proficiency, contributes significantly to expanding an individual's repertoire of new words ([Aravind et al., 2023](#)). Ultimately, students' mastery of vocabulary can assist them in overcoming learning challenges ([Chang et al., 2023](#)).

Vocabulary encompasses all elements of words used in various aspects of life, including language, science, and communication by a speaker. It serves as a linguistic tool that must be understood and mastered to facilitate effective communication, particularly in reading. According to [Zahro et al., \(2020\)](#), vocabulary refers to a collection of words within a sentence that can be developed through teaching materials, resources, or learning media. Therefore, it is essential for teachers to prepare interactive learning media that capture students' attention and aid in enhancing their vocabulary recognition skills.

Learning media serves as a communication tool between teachers and students, used to convey both visual and verbal information to facilitate the learning process. It also acts as a means of organizing information to make learning more effective [Sumianto et al., \(2021\)](#). According to [Yani et al., \(2023\)](#), learning media refers to physical tools such as photos, films, computers, and similar resources to deliver instructional content. [Zaki et al., \(2020\)](#) emphasized that the learning process cannot be separated from media, as it helps achieve desired educational outcomes. Moreover, learning media functions to motivate students by encouraging active participation in learning activities [Junaidi et al., \(2019\)](#). Based on this, learning media includes graphic and electronic tools that deliver verbal and visual information, promoting the teaching and learning process. It can be integrated with teaching methods to improve learning outcomes. According to [Gawise et al., \(2022\)](#), learning media is essential

for supporting learning activities and helps streamline these activities through effective content delivery. A specific example is illustrated storybooks, which engage students with colorful designs and interesting storylines (Putri et al., 2020).

Another issue identified by researchers in Indonesian language learning for second-grade students at SDN Sangge, Boyolali Regency, is the low level of student interest in the lessons, resulting in a lack of motivation. This suggests that the use of learning media has not been fully optimized in supporting students' skill development. Teachers still rely on conventional methods, making the learning process less effective and lacking interactive media that could increase students' engagement and improve learning outcomes. As a result, students show reduced enthusiasm and tend to become bored during lessons. The reliance on traditional teaching methods, without incorporating media, has also contributed to students' difficulties in mastering basic skills, such as recognizing syllables, reading vocabulary, and understanding short texts. This is reflected in students' learning outcomes, which have not met the required minimum competency standards (KKM).

The development of learning media should be aligned with the characteristics and needs of students, ensuring that the chosen instructional strategy promotes effective and efficient learning. A learning method acts as a strategy to enhance the student learning process, and an effective method can help students better grasp the material presented by the teacher. For instance, the Steinberg method is regarded as a valuable approach for improving the quality of early reading instruction (Kasmawati et al., 2022). The aim of employing learning methods is to provide benefits and facilitate the incorporation of cultural values and principles of local wisdom (Saputra et al., 2022). Local wisdom, in turn, can serve as a way of life and is often regarded as a guide for the community's behavior and values (Caesarine et al., 2023).

People have habits deeply rooted in their daily lives, which contain cultural values known as local wisdom. Local wisdom is an idea that encompasses beneficial and ingrained values, guiding community members in their way of life (Adhi et al., 2021). According to Aldi et al., (2022), the function of local wisdom is to serve as a regional identity and as a unifying factor for society amidst differences in race, religion, and culture. Local wisdom plays a vital role in enhancing both cognitive development and student character (Heri et al., 2021). Education is a platform for introducing and preserving culture among students, making local wisdom especially important in schools, particularly at the elementary level. In elementary education, it is essential to strengthen character based on local wisdom to counterbalance the many environmental influences within the multicultural landscape of education (Muhammadiyah et al., 2022).

Based on this background, the researcher aims to offer alternative solutions to address the needs of both teachers and students in enhancing vocabulary recognition skills. This is achieved by developing media for Indonesian language lessons, specifically focused on vocabulary recognition, through a study titled "Development of E-Picture Story Book Media Based on the Steinberg Method with Local Wisdom for Improving Vocabulary Recognition Skills of Low-Grade Students." The goal is to capture students' attention during the learning process, ultimately improving their ability to recognize vocabulary.

A study by Murniyudi et al., (2021), entitled "Development of Picture Story Books Based on Local Wisdom on Social Care Characters", revealed that the media was 95% effective and considered feasible based on validation by media and material experts. The media also helped enhance the social care character of fourth-grade students. Similarly, research by Ramadhani et al., (2022), entitled "The Effect of the Application of the Steinberg Method on the Beginning Reading Skills of Grade II Students of SD Inpres Todopuli 1 Makassar", showed that the Steinberg method significantly improved early reading skills in second-grade students, as reflected by better learning outcomes. Likewise, Hasanah et al., (2023), in their study "The Development of Illustrated Storybooks with Local Wisdom as a Reading Skill for Grade 2 Elementary School Students," affirmed the effectiveness and validity of such media for second-grade students. Additionally, research by Bus et al., (2020), titled "Toward Digital Picture Books for a New Generation of Emergent Readers," highlighted the

beneficial effects of digital picture books on improving vocabulary and literacy skills among young learners.

Based on previous studies, the author acknowledged the significance of research exploring the use of e-picture storybooks in elementary education. While prior research has established e-picture storybook media, it often lacks accompanying strategies and does not incorporate local wisdom relevant to the community. This observation highlights that using e-picture storybook media without an appropriate learning strategy and evaluation may render it ineffective for students. The novelty of this research lies in the development of e-picture storybook media based on the Steinberg method, enriched with local wisdom content, which has not been explored before. This media is designed to improve vocabulary recognition specifically in Indonesian language subjects. The primary objective of this research is to assess the feasibility and effectiveness of using e-picture storybook media, which is based on the Steinberg method and integrates local wisdom. The feasibility of this media is crucial, as it will serve as a benchmark for determining its suitability for production and utilization by students in their learning activities. Additionally, evaluating the effectiveness of the media is essential to understand how well it enhances students' comprehension of the material being studied.

According to the literature review, the creation of E-Picture Story Book media utilizing the Steinberg Method and incorporating local wisdom to enhance vocabulary recognition skills in low-grade students sets it apart from earlier research. This research incorporates both technology and print media in its development, utilizing media that are relatively new and not widely implemented. The E-Picture Story Book media is designed with engaging illustrations, vibrant colors, and appealing text to capture students' interest. The implementation of E-Picture Story Book media based on the Steinberg Method with local wisdom aims to enhance students' learning outcomes in Indonesian language subjects, specifically targeting the phase A elements of reading and viewing outlined in the Competency Proficiency (CP). The goal is for students to read familiar words fluently. This research underscores the importance of learning media in the educational process. The findings of this study are anticipated to contribute valuable resources in the form of E-Picture Story Book media that utilize the Steinberg Method with local wisdom, specifically aimed at improving vocabulary recognition skills among low-grade students. This media not only facilitates teachers in delivering lessons and assessing students but also aids in the development of students' vocabulary recognition skills.

The study's findings are expected to provide valuable E-Picture Story Book media based on the Steinberg Method and infused with local wisdom, designed to enhance vocabulary recognition skills in low-grade students. This media can be effectively integrated into the Indonesian language learning process, particularly for improving vocabulary recognition. By utilizing this resource, teachers will find it easier to facilitate the teaching and learning process, while also providing a reference for early reading assessment tools that adhere to established standards. Additionally, it will support the development of students' skills, ultimately resulting in better learning outcomes.

## **METHOD**

This study utilizes a Research and Development (R&D) approach, which was defined as a method for evaluating effectiveness and creating a product (Sugiyono, 2022). The developmental research follows the R&D framework outlined by Borg and Gall, as referenced in [Sugiyono \(2021: 404\)](#), consisting of eight stages adapted to the researchers' needs: (1) identifying potential issues; (2) gathering data; (3) creating the product; (4) validating the design; (5) modifying the design; (6) conducting product trials; (7) making additional revisions; and (8) implementing trial use.

Data related to the development process of the E-Picture Story Book, based on the Steinberg Method and incorporating local wisdom, were gathered by the researchers through qualitative observation activities. The feasibility data of the E-Picture Story Book for vocabulary improvement among low-grade students, focusing on vocabulary recognition material, was gathered through a validation questionnaire from material and media experts, which were analyzed qualitatively. Additionally, data on students' responses to the Steinberg Method-based E-Picture Story Book, aimed

at enhancing vocabulary recognition skills, were obtained via questionnaires completed by both students and teachers.

The quality of the E-Picture Story Book learning media, based on the Steinberg Method with local wisdom for enhancing vocabulary recognition skills among low-grade students, was assessed during the testing and validation phase by material experts. The purpose of material validation was to evaluate the suitability of vocabulary recognition competency materials in relation to student needs. Below is a table outlining the scoring criteria for each descriptor or statement as per (Pratiwi et al., 2023).

**Table 1**  
**Provisions For Material Expert Assessment**

Percentage	Criteria
0% – 25%	Less Feasible
26% – 50 %	Decent Enough
51% - 75 %	Worth
76% - 100%	Very Feasible

The material test encompassed four key aspects: learning objectives, the cognitive level of students, the adequacy of learning content, and the role of visuals in achieving educational goals. These aspects collectively assessed the content, which includes facts, concepts, principles, or generalizations. These four aspects were further broken down into 20 indicators listed below.

**Table 2**  
**Indicators For Material Expert Validation Assessment**

No	Criteria	Number of criteria
1	Accuracy with learning objectives	3
2	Suitable for students' cognitive levels	4
3	Support for educational content	6
4	Images can aid in achieving educational goals	3
5	Relevant to enhance lesson content	4
<b>Number of criteria</b>		<b>20</b>

The quality of the E-Picture Story Book learning media, based on the Steinberg Method with local wisdom for enhancing vocabulary among low-grade students, was assessed during the testing and validation phase by media experts. The purpose of media validation was to evaluate the suitability of the medium for meeting students' needs. Below was a table outlining the scoring criteria for each descriptor corresponding to the indicators, as per (Pratiwi et al., 2023).

**Table 3**  
**Criteria for Media Expert Assessment**

Percentage	Criteria
0% – 25%	Less Feasible
26% – 50 %	Decent Enough
51% - 75 %	Worth
76% - 100%	Very Feasible

There were four aspects in the media expert test, namely media suitability aspects, media appearance, usage aspects, and superiority aspects. These four aspects were described into 20 indicators as follows.

**Table 4**  
**Indicators for Media Expert Validation Assessment**

No	Criteria	Number of criteria
1	Relevance	4
2	Perspective	7
3	Usage	5
4	Excellence	4
<b>Number of criteria</b>		20

Data on the improvement of student learning outcomes in this study were obtained through pre-test and post-test results from a large-scale assessment. The data analysis technique employed in this research included both qualitative and quantitative methods. Data analysis was a systematic way of organizing information collected from interviews, observations, and documents, allowing it to be presented to the public clearly and accessibly (Sugiyono, 2018: 482). Qualitative data analysis focused on interpreting the information obtained from interviews, observations, and document reviews in a descriptive and interpretive manner. In contrast, quantitative data were derived from analyzing the pre-test and post-test results of the large-scale assessment using paired sample t-tests and *N-Gain* tests.

The paired sample t-test was utilized to evaluate the effectiveness of the media, indicated by the differences in average scores before and after the intervention. The *N-Gain* test assessed the improvement in average student learning outcomes before and after utilizing the E-Picture Story Book learning media, which combined the Steinberg strategy with local wisdom to enhance vocabulary recognition skills among low-grade students. The formula for the *N-Gain* test was as follows:

$$N-Gain = \frac{skor\ posttest - skor\ pretest}{SMI - skor\ pretest}$$

## RESULTS AND DISCUSSION

This research leads to the creation of E-Picture Story Book learning media based on the Steinberg Method and infused with local wisdom, designed to enhance the learning process. In the initial stages, the researchers identified a significant issue: students' limited ability to recognize vocabulary, as evidenced by the Indonesian language learning outcomes. Specifically, at SDN Sangge I, the average score was 63.15, and at SDN Sangge II, it was 64.8, both of which fall below the KKM threshold of 70.

In light of these challenges, the researcher proceeded with data collection, which involved conducting interviews, making observations, gathering document data, and distributing a teacher needs questionnaire to determine what products to develop. The data revealed that students often feel bored during lessons due to a lack of engaging materials, while teachers have yet to utilize effective learning media and still rely primarily on textbooks as their reference. Given these issues, there is a clear need for learning media that enhances vocabulary recognition skills and is designed to be as engaging as possible. Students prefer visual learning media that feature captivating images and stories to boost their interest and motivation during the learning process.

The subsequent stage involves creating a product design that addresses the issues identified through interviews, observations, data collection, and teacher needs questionnaires.

**Table 6**  
**Recapitulation of Teacher Needs Questionnaire**

No	Question Indicator	Answer
1.	Is learning Indonesian, especially in recognizing vocabulary, difficult?	Yes
2.	Do the results of vocabulary recognition skills need to be improved?	Yes
3.	Does the teacher still use the lecture method in delivering the material?	Yes
4.	Is there a need for more engaging learning media technology to help students improve their reading comprehension?	Yes
5.	Do students like digital learning media?	Yes
6.	Which learning media display should be used?	Colorful
7.	What content should be included in the media?	Local wisdom

The researchers propose an alternative solution by developing E-Picture Story Book media based on the Steinberg method, which aimed to facilitate vocabulary recognition for students while incorporating local wisdom from the Boyolali area. This approach allowed students to learn within the context of their cultural environment. The media featured two stories directly adapted from the local cultural wisdom of Boyolali: Dekahan and Lebaran Sapi, presented with engaging illustrations and narratives.

This learning media leveraged technology and can also be printed. It incorporated local wisdom from the Boyolali area, specifically focusing on the cultures of Dekahan and Lebaran Sapi, which were appealing to audiences of all ages, from adults to children. The implementation of the Steinberg method in this learning process included reading vocabulary with images, followed by reading vocabulary without images, then progressing to reading simple sentences formed from the vocabulary, and finally combining these simple sentences into a discourse text about local wisdom. Each vocabulary word, sentence, and descriptive story text about local wisdom was enhanced with vibrant colors, and the media also included illustrations related to the local cultural wisdom of the Boyolali area.

An E-picture story book is a visual narrative designed to assist students in their reading efforts (Wu, 2019). This resource was developed in an electronic format with an interactive and communicative design (van Dijken, 2023). The creation of this E-picture story book addresses the students' shortcomings in vocabulary recognition skills. Vocabulary plays a crucial role in education, as it serves as the foundation for students' reading abilities (Abdirakhimova, 2023).

The application of the Steinberg method involved students observing pictures and reading vocabulary associated with those images. The pictures were designed to illustrate icons from the Dekahan and Lebaran Sapi cultures in the Boyolali district, highlighting the theme of local wisdom. Following the vocabulary development with images, the next step was to present vocabulary without accompanying pictures. This maintained the same concept but encourages students to begin comprehending the vocabulary they encounter independently. Subsequently, students' progress to reading sentences formed from the arranged vocabulary, culminating in the final stage where they combine these simple sentences into a short discourse about the Dekahan and Lebaran Sapi cultures. All designs-including pictures, vocabulary, sentences, and descriptive story texts-focus on discussing local wisdom related to the Dekahan and Lebaran Sapi cultures. Thus, the product developed by the researchers is titled "E-Picture Story Book Media Based on the Steinberg Method with Local Wisdom for Improving Vocabulary Recognition Skills of Low-Grade Students," specifically aimed at third-grade students at SDN Sangge.

The next phase was product validation, which aimed to identify the strengths and weaknesses of the product, necessitating an evaluation by an expert in the relevant field. The validation of the Steinberg Method-Based E-Picture Story Book with Local Wisdom for Improving Vocabulary Recognition Skills of Low-Grade Students was conducted by both media and material experts. Media expert validation was performed by Mr. Moh. Fathurrahman S.Pd., M.Sn., a lecturer in fine arts education at Semarang State University. Meanwhile, the material expert validation was conducted by

Dr. Sri Sukasih, S.S., M.Pd., an Indonesian language lecturer at Semarang State University. From the validation questionnaires administered to the material and media experts, the product received a percentage of 92% from the material experts, indicating very good criteria, while media experts rated it at 88%, also reflecting very good criteria. Detailed data can be found in the following Table 7.

**Table 7**  
**Material Expert and Media Expert Validation Results**

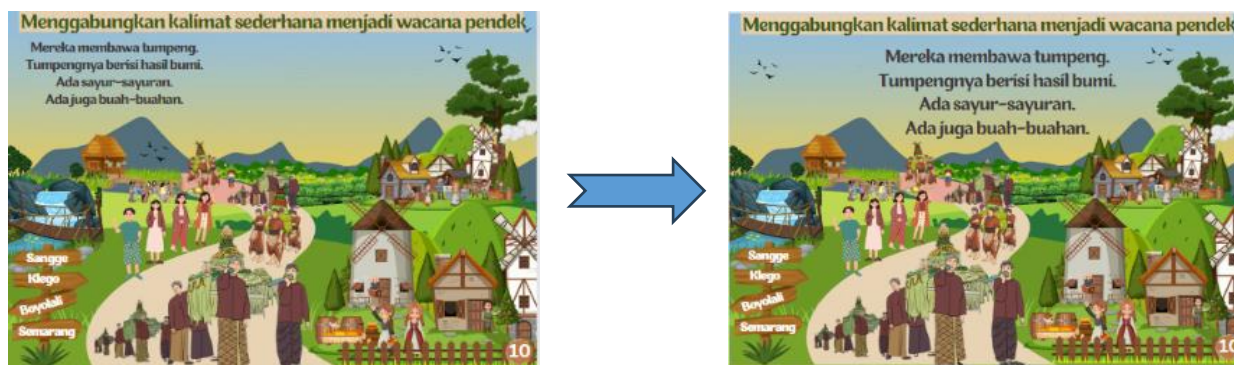
No	Trial Subject	Results	Qualification
1	Material expert	92%	Very feasible
2	media expert	88%	Very feasible

Based on these results, it can be concluded that the E-Picture Story Book Based on the Steinberg Method, infused with Local Wisdom for Improving Vocabulary Recognition Skills of Low-Grade Students, is highly feasible for use. According to Sugiyono (2018: 414), the subsequent step after evaluating the product is to refine the design that has been created. Improvements to the media at this stage are made in accordance with the recommendations provided by the media and material experts. The revised product underwent further consultation until it was confirmed to be suitable for testing with students. The suggestions and improvements provided by the validators were as follows.

**Table 8**  
**Validator Revision Results**

No	Validation	Comments/Suggestions	Improvement
1	Material	Pay attention to layout / neatness	Corrected as suggested
2	Media	Font revision	Corrected as suggested

The revisions to the products that had been evaluated by experts and deemed suitable for field testing were outlined as follows.



**Figure 1. Learning Media Design Before and After Revision Validators**

The results of the revisions made after feedback from material and media experts had been implemented to enhance the appearance of the E-Picture Story Book based on the Steinberg Method, infused with local wisdom, aimed at improving vocabulary skills for low-grade students. Below was the media display of the E-Picture Story Book, designed using the Steinberg Method, which incorporated local wisdom for enhancing vocabulary skills in low-grade students.





Figure 2. E-Picture Story Book Media Display

At this stage, the researchers made revisions to the product based on the validators' suggestions, followed by small-scale testing. The first step involved conducting a small-scale trial to

collect information and feedback on the effectiveness of the E-Picture Story Book learning media, which was based on the Steinberg Method and incorporated local wisdom to improve vocabulary recognition skills among low-grade students. The product trials included a demonstration of the E-Picture Story Book media in a small setting, with six students participating in the trial.

Product trials were carried out using an instrument designed to assess beginning reading skills, utilizing an experimental one-group pretest-posttest design. This method enabled researchers to effectively compare the conditions before and after implementing the E-Picture Story Book media, based on the Steinberg Method and infused with local wisdom, to enhance vocabulary recognition skills among low-grade students. After the media trial with the six students, the researcher distributed a questionnaire to the teacher to evaluate their response to the E-Picture Story Book media and its effectiveness in improving vocabulary recognition skills in grade II students.

**Table 9**  
**Results of the Small Group Product Usage Trial**

Action	Average	Lowest Value	Highest Score	Number of Students Completed	Percentage Description
<i>Pretest</i>	56,6	30	80	2	33,3%
<i>Posttest</i>	84,1	60	90	5	83,3%

Based on Table 9, it can be concluded that there was a significant improvement in students' Indonesian learning outcomes concerning vocabulary recognition skills between the pre-test and post-test following the small group product trial. Initially, during the pre-test, only 2 out of 6 students achieved mastery, representing 33.3%. In contrast, in the post test, 5 out of 6 students reached mastery, amounting to 83.3%. This data indicated a notable improvement in students' learning outcomes in Indonesian, specifically in vocabulary recognition, as evidenced by the calculations derived from the *N-Gain* formula.

$$N\text{-Gain} = \frac{\text{skor posttest} - \text{skor pretest}}{SMI - \text{skor pretest}}$$

The interpretation criteria for the gain index according to (Yudhanegara & Lestari, 2017) are as follows.

**Table 10**  
**Interpretation of Gain Index**

Value <i>N-Gain</i>	Criteria
$N\text{-gain} \geq 0,70$	High
$0,30 < N\text{-gain} < 0,70$	Medium
$N\text{-gain} \leq 0,30$	Low

Additionally, the researchers analyzed the data from the small-scale trial using the *N-Gain* formula and the t-test, resulting in the following findings.

**Table 11**  
**Effectiveness Test Results**

Criteria	Value
N-Gain Kelas	0,63
Sig. (2-tailed)	0,003

According to Table 11, there was an increase in the average (*N-Gain*) of small groups in students' Indonesian learning outcomes regarding vocabulary recognition, moving from a pretest score of 56.6 to a posttest score of 84.1. This represents an average increase of 27.5, resulting in an *N-Gain* average of 0.63, which falls within the moderate criteria. This improvement indicated that the E-Picture Story Book media based on the Steinberg Method with Local Wisdom was effective for grade II students at SDN Sangge in enhancing their Indonesian language learning outcomes in

vocabulary recognition. Additionally, Table 11 displayed the results of the pretest and posttest average difference test conducted using the SPSS 25 application, which yielded a (2-tailed) value of 0.000. In the paired sample t-test, the criterion stated that if the significance value (2-tailed) is greater than 0.005, there was no significant difference between students' Indonesian learning outcomes in vocabulary recognition for the pretest and posttest. However, the t-test results showed a significance value (2-tailed) of 0.000, which was less than 0.005, indicating a significant difference between the pretest and posttest scores.



After the product underwent small-scale testing, the researchers gathered feedback from the teacher response questionnaire, which highlighted weaknesses and shortcomings in the product. The suggestions provided were utilized to enhance the product's effectiveness during its use. Once improvements were made, the product was ready to be tested for its effectiveness in the product usage trial. The revised version of the product, adjusted according to the validators' suggestions, was as follows. In this study, closed questionnaires were employed using a Guttman scale, offering alternative response options of "yes" and "no" for the teachers to choose from. Respondents were asked to indicate their opinions by ticking the answer options that best reflected their views.

**Table 12**  
**Teacher Response Questionnaire**

No	Criteria	Yes	No
1	The display of E-Picture Story Book media based on the Steinberg Method with Local Wisdom is very interesting to use.	√	
2	Images and illustrations in the media E-Picture Story Book Based on the Steinberg Method with Local Wisdom are clearly visible.	√	
3	The text in the E-Picture Story Book media based on the Steinberg Method with Local Wisdom can be read clearly.	√	
4	E-Picture Story Book Media Based on the Steinberg Method Charged with Local Wisdom uses bright colors, synchronous, attractive, and comfortable in the eyes.	√	
5	Instructions for using the E-Picture Story Book media based on the Steinberg Method with Local Wisdom are easy to understand and apply.	√	
6	E-Picture Story Book Media Based on the Steinberg Method with Local Wisdom can be studied alone or in groups.	√	
7	The use of E-Picture Story Book media based on the Steinberg Method with Local Wisdom can increase student interest in learning.	√	
8	Learning objectives are clearly formulated	√	
9	The material presented is in accordance with the indicators to be achieved	√	
10	The material in the E-Picture Story Book media based on the Steinberg Method with Local Wisdom is easy to understand.	√	
11	The material in the media E-Picture Story Book Based on the Steinberg Method Charged with Local Wisdom is quite complete	√	
12	Add insight into reading comprehension	√	
13	The language used in the E-Picture Story Book media based on the Steinberg Method with Local Wisdom is easy to understand.	√	
14	The sentences used are easy to understand	√	
15	The terms in the media used are understandable	√	

The analysis of the teacher response questionnaire showed that the E-Picture Story Book media, based on the Steinberg Method and incorporating Local Wisdom for Improving Vocabulary Recognition Skills among Low Grade Students, received a score of 100%, indicating a "Very Feasible" rating. The next step for the researchers was to revise the product based on the suggestions and feedback provided by teachers during the small-scale trials, as detailed below.

**Table 13**  
**Revision Results Based on Teacher Suggestions**

Appraiser	Suggestions and Feedback	Before Revision	After Revision
Teachers and Students	Added Boyolali original icon		

The analysis of the teacher response questionnaire indicated that the E-Picture Story Book media, developed using the Steinberg Method with Local Wisdom for enhancing vocabulary skills among low-grade students, received a score of 100%. This leads to the conclusion that this learning media was highly effective for improving vocabulary recognition skills in students.

The revised product was subsequently tested on a larger scale. The subjects of this study were second-grade students from SDN 1 Sange, consisting of 13 students selected using a saturated sampling technique, which included the entire population. The trial utilized the E-Picture Story Book learning media, based on the Steinberg Method and infused with local wisdom, to enhance vocabulary recognition skills and assess its effectiveness in improving students' Indonesian language learning outcomes. The product testing phase involved written assessments (pretest and posttest) using an experimental method with a one-group pretest-posttest design, allowing for a more accurate comparison of results before and after the implementation of the media. At the end of the lesson, the researcher distributed a response questionnaire to the teacher to gather feedback on the media created by the researcher.

**Table 14**  
**Large Group Product Usage Trial Results**

Action	Average	Lowest Grade	Highest Grade	Number of Students Completed	Percentage Description
Pretest	65,3	50	85	4	30,7%
Posttest	86,5	65	95	12	92,3%

Based on the results shown in Table 14, it can be concluded that there was a significant improvement in students' Indonesian learning outcomes related to vocabulary recognition skills, as indicated by the pretest and posttest results from the small group product usage trial. In the pretest, 4 out of 13 students achieved mastery, representing 30.7%, while in the posttest, the number of students reaching mastery increased to 12 out of 13, or 92.3%. This data demonstrated a marked improvement in students' Indonesian learning outcomes concerning vocabulary recognition before and after using the researcher-developed media. The findings indicated a notable difference in students' progress in vocabulary recognition skills, as evidenced by the calculations using the *N-Gain* formula.

$$N\text{-Gain} = \frac{\text{skor posttest} - \text{skor pretest}}{SMI - \text{skor pretest}}$$

The interpretation criteria for the gain index according to (Yudhanegara & Lestari, 2017) are as follows.

**Table 15**  
***N-Gain* Index Interpretation**

Value <i>N-Gain</i>	Criteria
$N\text{-gain} \geq 0,70$	High
$0,30 < N\text{-gain} < 0,70$	Medium
$N\text{-gain} \leq 0,30$	Low

Additionally, the researchers analyzed the data collected during the small-scale trial using the *N-Gain* formula and the t-test, yielding the following results.

**Table 16**  
**Effectiveness Test Results**

Criteria	Value
N-Gain Kelas	0,58
Sig. (2-tailed)	0,000

According to the calculations from the average increase test (*N-Gain*), it was found that grade II students at SDN Sangge experienced an average increase of 0.58, with a mean difference of 34.4, which fell within the medium criteria. The results of the average increased from the pretest and posttest data, using the E-Picture Story Book media based on the Steinberg Method and incorporating local wisdom to enhance vocabulary recognition skills among low-grade students, were as follows. Additionally, Table 16 presents the results of the mean difference test between the pretest and posttest using the SPSS 25 application, revealing a (2-tailed) value of 0.000. According to the paired sample t-test criteria, if the significance value (2-tailed) was greater than 0.005, it indicated that there was no significant difference in students' Indonesian learning outcomes in vocabulary recognition between the pretest and posttest. However, the t-test results indicated a significance value (2-tailed) of 0.001, which was less than 0.005, confirming a significant difference between the pretest and posttest outcomes.

The research by Murniyudi et al., (2021) focused on the development of picture storybooks grounded in local wisdom, with the goal of promoting social care characteristics. This study achieved a significance level of 5% and was deemed suitable for use based on the validation results from both media and material experts. The findings indicated that the intervention effectively improved the social care character among grade IV students.

This research aligns with the study conducted by Laksono et al., (2021), which concentrated on developing story-designed picture storybooks aimed at improving reading comprehension skills among second-grade elementary students. The results indicated a significant enhancement in the reading comprehension skills of these students, as evidenced by the pretest and posttest scores. The average posttest score reached 86.32, demonstrating a marked improvement in student performance following the implementation of the Level C picture storybooks. This indicated a noticeable improvement in student scores before and after implementing the storybook intervention.

The research conducted by Pertiwi et al., (2019) examined the impact of implementing the Steinberg method on the beginning reading skills of second-grade students at SD Inpres Todopuli 1 in Makassar. The study demonstrated that the Steinberg method effectively enhances student learning outcomes, as evidenced by the significant improvement in their beginning reading skills. This improvement was reflected in the increased learning outcomes observed in the students.

The research highlights an innovative approach by combining the Steinberg Method with local wisdom to create an engaging learning tool. By focusing on technology-enhanced E-Picture Story Books, vocabulary recognition skills were addressed in a unique way that resonates with students' cultural backgrounds. This aligns well with current trends in education that emphasize the integration of technology to foster learning and maintain student engagement.

The E-Picture Story Book media was created using the Steinberg method to assist students in enhancing their reading and vocabulary recognition skills. This method is effective in improving the quality of early reading instruction. Developed in 1982, it consists of four phases: recognizing words with pictures, recognizing words without pictures, constructing sentences from the introduced words, and forming discourse from the compiled sentences. This approach enriches the learning process by helping students associate words with concrete images, making it easier for them to comprehend the words and sentences they read (Pertiwi et al., 2019; Widodo, 2022).

The rapid advancements in technology today threaten to overshadow the original cultures of various regions, which is why the E-Picture Story Book media was developed with a focus on local wisdom. In the context of current technological progress, there was a pressing need for learning media that incorporates local wisdom content (Pratiwi et al., 2020). Students ultimately became part of a society that embodies its own culture, and culture and language are intrinsically linked within any community. Local wisdom represented a facet of culture present in society and serves as a national identity that must be preserved (Suwari et al., 2020). Moreover, local wisdom embodied a philosophy inherent to every community, reflecting an integrated and holistic approach to life (Uge et al., 2019).

The E-Picture Story Book Media, based on the Steinberg Method and incorporating local wisdom, features illustrations of the culture in the Boyolali area, specifically focusing on the traditions of Dekahan and Lebaran Sapi. These vibrant and engaging images were designed to capture children's interest and enhance their understanding of the content within the picture storybook. This media could be utilized by teachers for various vocabulary reading activities, including reading vocabulary with pictures, reading vocabulary without pictures, constructing simple sentences from a series of words, and integrating those simple sentences into descriptive stories. According to Hasan et al., (2021), effective learning media played a crucial role in helping students acquire new concepts, competencies, and skills.

The E-Picture Story Book Media, grounded in the Steinberg Method and enriched with local wisdom, is beneficial for enhancing students' memory, making the learning process more effective. Additionally, media played a crucial role in educational activities by fostering learner engagement. Teachers frequently encountered challenges in delivering material, and learning media can serve as a motivating tool for students during teaching and learning activities, as noted by (Sari et al., 2019; Anggraeny et al., 2020).

The E-Picture Story Book media, developed using the Steinberg Method and incorporating local wisdom, could be projected on a screen or large display, making it effective for use in both classroom and home settings. Additionally, this media was available in printed format, providing accessibility for schools with limited facilities and infrastructure, such as those lacking LCD projectors. By utilizing the E-Picture Story Book, students could enhance their reading skills related to local wisdom, enabling them to apply these concepts in their everyday lives.

The research and development of the E-Picture Story Book media, based on the Steinberg Method and infused with local wisdom, offered significant advantages for second-grade elementary school students. This media captured students' interest and enhances their motivation to learn. It facilitated teachers in presenting vocabulary recognition content by showcasing engaging images that are easy for students to comprehend. Furthermore, the media aided students in grasping the concepts related to vocabulary recognition in a school setting.

## CONCLUSION

The research findings on the development of the E-Picture Story Book media, based on the Steinberg Method and infused with local wisdom, showed that it was specifically designed to meet the needs of teachers and students in vocabulary recognition for Indonesian language subjects among second-grade students at SDN Sangge. This media was created using digital technology, particularly the Canva application. The feasibility of the E-Picture Story Book media had been validated by a team of evaluators, including material and media experts, who gave scores of 92% and 88%, respectively, both classified as "very feasible." Additionally, feedback from teachers indicated a 100% approval rating for the media's usability. The effectiveness of the E-Picture Story Book media, based on the Steinberg Method and local wisdom, in improving vocabulary recognition skills is evidenced by significant enhancements in student learning outcomes. This is reflected in the pretest and posttest scores, showing an N-Gain of 0.58 and a significance value (2-tailed) of 0.000, which is less than 0.05. Therefore, the study concludes that the E-Picture Story Book media is both feasible and effective for enhancing the competency of third-grade students at SDN Sangge in interpreting fairy tale messages.

The E-Picture Story Book Media, designed using the Steinberg Method and incorporating local wisdom, aimed to support teachers in enhancing vocabulary recognition among low-grade students in Indonesian language lessons. This learning media featured engaging pictures and stories that were carefully arranged to capture students' attention during the learning process. By doing so, it fulfilled its intended purpose of fostering interest, appeal, and enthusiasm among students, which could lead to achieving educational objectives more effectively. Through this development, it was anticipated that the media would significantly assist teachers and students alike in the process of vocabulary recognition.

Based on the research conducted on the development of E-Picture Story Book media utilizing the Steinberg Method and local wisdom for enhancing vocabulary among low-grade students, the suggestions provided to researchers were instrumental in supporting the learning process for Indonesian language material focused on vocabulary recognition in elementary schools. Teachers are encouraged to create more innovative and varied media to enhance student comprehension and learning outcomes. It is anticipated that the E-Picture Story Book media will serve as a valuable resource for independent learning at home. Additionally, schools should facilitate training for teachers to foster the development of innovative Indonesian language learning media, thereby enabling students to grasp concepts more easily and improve their language skills.

### DECLARATIONS

<b>Author contribution</b>	: In this research, Dyah Ayu Ihza Yunita was responsible for all stages of the research, including planning, data collection, analysis, and drafting the article. Dr. Panca Dewi Purwati, M.Pd. and Nugraheti Sismulyasih SB, S.Pd., M.Pd. as supervisors provided important methodological direction and intellectual guidance. Thanks to their support, this research can be carried out well and this journal article can be prepared well.
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<b>Conflict of interest</b>	: Three authors declare that they have no conflicts of interest.
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