

**Development of an Interactive Digital Book of Bilingual Children's Stories  
Based on Local Wisdom in Revitalising Mandailing Batak Language for the  
Alpha Generation**

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**ABSTRACT**

The background of the problem consists of in the digital era which is more dominated by gadgets causing the alpha generation to be less social, interact and not care about the surrounding environment, especially in local wisdom and Mandailing Batak Language, the lack of children's concern for this can make Mandailing Batak language endangered. The main purpose of this research is to preserve local wisdom and improve regional language skills, especially Mandailing Batak regional language. The research method uses the ADDIE model, namely *analysis, design, development, implementation, evaluation*. The number of subjects in this study was 20 fifth grade students. The analysis technique used is a Likert scale and the data evaluation tool used uses a questionnaire sheet and the N-Gain Score Test. Based on the results obtained from material experts 95%, media experts 91.66%, linguists 96.66% and teacher responses 95.83%. After testing on students to see the results of the N-Gain test, the average value of the pretest was 74.05 while the average value of the posttest was 94.25. And the N-Gain value is obtained 79.01 which shows in the Effective category.

**Key words:** Interactive Digital Book; Bilingual Children's Stories; Local Wisdom; Revitalisation; Batak Mandailing

**INTRODUCTION**

Local languages are essential for maintaining the cultural identity of a society. However, globalisation and rapid technological advances have caused many local languages to decline or even become extinct. Mandailing Batak is one of the local languages facing this problem. Especially Generation Alpha children born after 2010 are more familiar with slang than their own local language.

Local languages are an important part of cultural identity and ancestral heritage that must be preserved. However, the current reality shows that many regional languages in Indonesia are in critical condition. Data from the Language Development and Guidance Agency 2022 notes that of the 718 identified regional languages, more than 400 languages are in a state of endangerment because they have fewer speakers and are not passed on to the younger generation (Language Development and Guidance Agency, 2022).

One of those facing this condition is Mandailing Batak language, whose speakers are dominated by the older generation and are increasingly rarely used in daily life, especially in the family and education environment. To overcome the problem of the endangered Mandailing Batak language in the Alpha generation, it is necessary to take serious action in an effort to preserve regional languages and local wisdom. In this digital era, gadgets have become an important part of children's lives in the modern era. A survey by Kominfo 2021 shows that more than 70% of elementary school-age children in Indonesia use gadgets every day, but the use of gadgets is still more for entertainment, not for the preservation of local culture (Ministry of Communication and Information (Kominfo), 2021). To overcome the above problems, utilising technology is one of the solutions to maintain local wisdom and regional languages.

Therefore, it is important to create digital-based learning media that is attractive and in accordance with the learning styles of modern children (Riyana, 2019). Interactive digital bilingual children's storybook based on local wisdom is a solution that can be applied. It is hoped that this media will help revitalise Mandailing Batak language while fostering children's love for local culture.

This research has significant urgency for several reasons (1) the low use and understanding of Mandailing Batak among the Alpha Generation, which is a real threat to language preservation. This language will become extinct in the next few decades if there is no effort to revitalise it. (2) local language learning is still dominated by traditional methods, such as printed books and lack of technology utilisation. (3) the importance of local wisdom in education by integrating cultural values in shaping children's character.

Based on this urgency, the formulation of this research problem will identify the extent of children's ability to use Mandailing Batak language and find effective ways to attract their interest to learn and use Mandailing Batak language. The development of interactive digital bilingual children's storybooks based on local wisdom is an innovative solution that is relevant to the digital world of today's children. This book is expected not only as a learning medium, but also as a fun and accessible means of cultural preservation, while paving the way for a wider dissemination strategy through collaboration with schools and communities.

This research aims to revitalise the Mandailing Batak language with the help of a digital-based bilingual children's storybook with the existence of this digital book

children can revitalise the Mandailing Batak language and foster curiosity about their local wisdom.

Proposed problem-solving approaches and strategies (1) needs analysis related to digital-based bilingual children's storybooks in revitalising Mandailing Batak language. To ensure the existence of digital-based bilingual children's storybooks in accordance with the needs of children in revitalising Mandailing Batak language. (2) designing and designing digital-based bilingual children's storybooks as interesting as possible to measure effectiveness in revitalising language. (3) develop a digital book of bilingual children's stories containing Mandailing Batak local wisdom, then conduct validation consisting of validation of linguists, materials and media to measure the feasibility of digital books that have been developed. (4) Implementing digital-based bilingual children's storybooks in real learning and analysing the impact on the revitalisation of Mandailing Batak language by conducting Pretest and Posstest, Normative Test, Homogeneity Test, Independent t-test and N-Gain Score Test. (5) Evaluating the effectiveness by analysing the test results given to children.

State of the Art of this research is the utilisation of digital book-based technology. Previous research conducted by (Wonda et al., 2022) shows that the importance of using digital books as a medium in improving learning. Then there is an article written by Septian (2023) the importance of making efforts to revitalise local languages through the translation of local language children's storybooks (Delaseniati, 2023).

The novelty of this research lies in the development of a bilingual (Indonesian-Batak Mandailing) interactive digital children's storybook designed specifically for the Alpha Generation, by integrating local wisdom into the content and design. Different from previous studies that focus more on preserving local languages through conventional methods such as printed books and language classes, this research offers an innovative digital solution that suits the learning style of today's children. This media not only helps children understand their mother tongue, but also reinforces local cultural identity through fun visual, audio and digital interaction approaches.

## LITERATURE REVIEW

### **Mandailing Batak language**

Indonesia is a country that has a very diverse cultural wealth, reflected in the existence of traditional houses, traditional dances, traditional clothing, musical instruments, and regional languages that are unique to each region. This diversity is a national identity as well as a cultural heritage that needs to be preserved. One of the regional languages that has an important role is Mandailing Batak language, which developed in the South Tapanuli region and Padang Sidempuan City (Maulia sindy, 2022). Mandailing Batak language functions as a *lingua franca* or lingua

*franca* of the local community. This language is used in daily interactions, both in the family environment, friends, and society at large, especially in the non-formal realm. Thus, Mandailing Batak language not only acts as a means of communication, but also as a medium for forming the cultural identity of Mandailing people.

### **Local Wisdom**

Epistemologically, the concept of *local wisdom* consists of two terms, namely "*wisdom*" and "*local*". In the English Indonesian Dictionary by John M. Echols and Hassan Shadily, the word *local* is interpreted as "local", while *wisdom* is defined as "wisdom". Thus, local wisdom can be understood as ideas, values, or worldviews that originate from local culture, are wise, contain virtues, and are inherited and practised by community members in everyday life. In line with this understanding, Sudikan in (Hadi, 2015) explains that there are three terms that are often used overlappingly in referring to the same concept, namely local knowledge, local wisdom, and local *genius*. All three terms emphasise that local wisdom is a result of socio-cultural construction that not only reflects the practical knowledge of the community but also includes dimensions of wisdom and collective intelligence that guide action and interaction. Concrete examples of Mandailing Batak local wisdom can be found in various aspects of community life. In the field of custom, for example, there is the *Dalihan Na Tolu* philosophy which is the basis of social order and kinship relations between *mora* (the giver of women), *kahanggi* (blood relatives), and *anak boru* (the recipient of women). This philosophy teaches balance, mutual respect and solidarity in community life. In oral language and literature, Mandailing people have a tradition of *ende-ende* (traditional songs) and *umpasa* (proverbs) that are full of moral, didactic values and guidelines for social ethics. In addition, in the art of music there is the use of traditional musical instruments such as *gondang* and *bolon flute (seruling bolon)* which not only functions as entertainment but also contains spiritual meaning and is an important part of traditional ceremonies. Then there are traditional games such as *gasing*, *engklek* etc.

### **METHOD**

This research uses a qualitative approach with the Research and Development (R&D) method with the ADDIE model (*Analysis, Design, Development, Implementation, Evaluation*) (Sugiyono, 2021). The main objective of this research is to support the revitalisation of Mandailing Batak Language for the Alpha Generation using digital technology, namely interactive and local wisdom-based bilingual children's storybooks. The population of this research is alpha generation children aged 7-12 years who have a Mandailing tribal background. The research location was carried out at UPTD SD Negeri 13 Langgapayung. The selection of this location was based on cultural relevance and language preservation. *Purposive sampling* is a *non-probability* sampling method in which the sample is selected according to the research objectives (Arikunto, 2022). In other words, the sample

is not randomly selected, instead, certain considerations are taken to fulfil the research needs and the sample size consists of 20-30 students. Data analysis in this study was done in a simple way. Initially, researchers observed and interviewed teachers, parents, and children to find out the conditions of Mandailing Batak language use. After the digital media was made, pretests and posttests were conducted to see the improvement of children's abilities before and after using the media. The test results were compared simply. In addition, questionnaires were distributed to find out the opinions of children and teachers about the media. All data was combined to evaluate whether this digital book is effective in helping children learn Mandailing Batak language in an interesting way and according to their needs. The following is the Flowchart of the research:

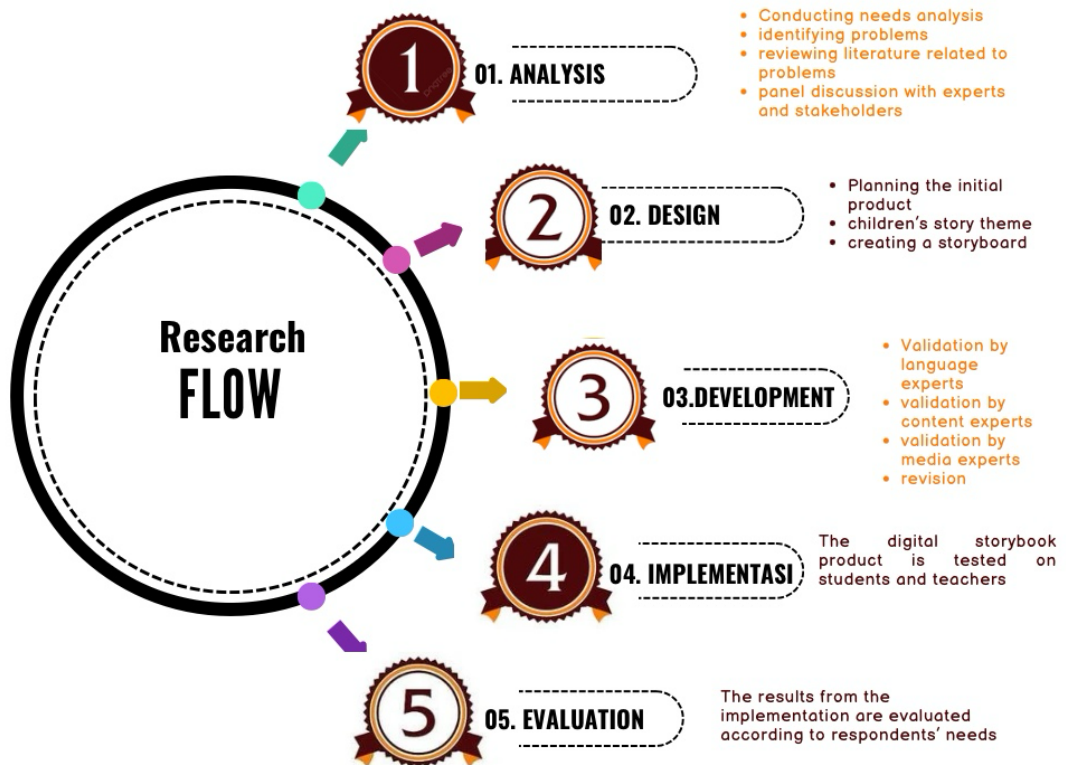


Figure 1. Research Flowchart

This research uses the ADDIE model which consists of five stages. First, the analysis stage was conducted to find out the needs of children for Mandailing Batak language learning media. Second, the design stage, researchers began designing bilingual digital storybooks that were interesting and appropriate for children's age. Third, the development stage, the media is made in an interactive digital form complete with images, sound, and animation. Fourth, the implementation stage, the media was tested on children to see its effectiveness. Finally, the evaluation stage is carried out to assess the results of using the media, including suggestions and input from users, so that the media can be improved and refined before being widely

used. The data analysis technique used was data on the state of development of bilingual children's story digital books. This data was collected through a team of expert validation, then a questionnaire/questionnaire distributed to students. Assessment instruments for validators and implementation tests are made in the form of Likert scales that have been given scores as in the table below.

*Table 1. The rating score of interest classification*

No.	Category	Interval Score
A	Strongly Interested (Very)	$81\% \leq X < 100\%$
B	Interested (High)	$61\% \leq X < 80\%$
C	Moderate	$41\% \leq X < 60\%$
D	Uninterested (Low)	$21\% \leq X < 40\%$
E	Strongly Uninterested (Very)	$0\% \leq X < 20\%$

(Sugiyono, 2012)

## RESULT AND DISCUSSION

This research was conducted at the UPTD Elementary School. SD Negeri 13 Langgapayung on class V students totalling 20 people. With the development of an interactive digital book of bilingual children's stories based on local wisdom, the ADDIE development model consists of the following five steps:

### 1. Analysis

At this stage researchers conducted in-depth observations and interviews on the understanding and use of Mandailing Batak language both in the school and community environment. From the results of interviews with students and teachers, there are still many students who cannot use Mandailing Batak language even though they live in an environment that predominantly uses Mandailing Batak language, in local content learning subjects have never used bilingual children's story digital books based on local wisdom, the storybooks that students often read are Indonesian storybooks. The use of interactive digital books of bilingual children's stories based on local wisdom can help students understand and use Mandailing Batak language. Through this book, students can revitalise the Mandailing Batak language. In addition, researchers gave a questionnaire to students to see how enthusiastic they were about the interactive digital book of local wisdom-based bilingual children's stories in revitalising Mandailing Batak language and researchers wanted to see what kind of book was needed by students in understanding Mandailing Batak language. The following are the results of the needs analysis.

*Table 2. Needs Analysis Results*

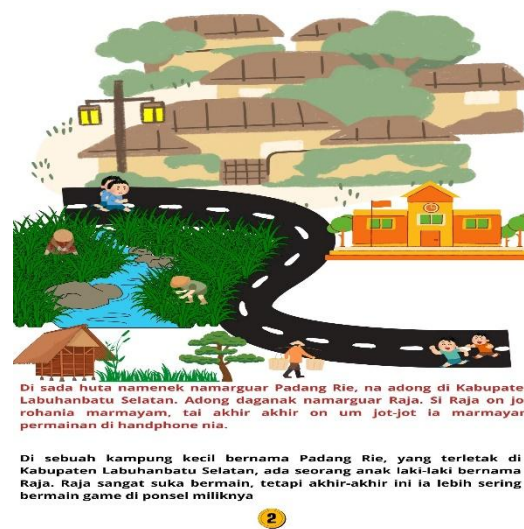
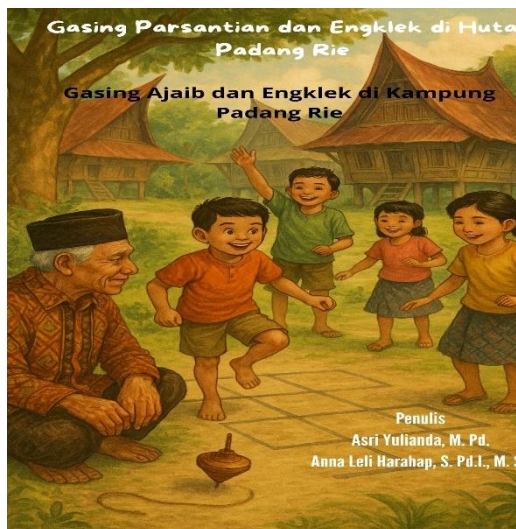
Category	Number
Total Score	745

Maximum Score	800
Percentage	100 %
Percentage Score	93,12%
Category	Very good

Based on the results of the needs analysis conducted, it was found that the development of interactive digital books of bilingual children's stories based on local wisdom is needed by students to revitalise the Mandailing Batak language.

## 2. Design

Based on the results of the needs analysis, the design of an interactive digital book of bilingual children's stories based on local wisdom is designed according to the needs, based on the findings at the UPTD school. SD Negeri 13 Langgapayung. Interactive digital books of bilingual children's stories based on local wisdom are designed with illustrations and concise stories that contain concepts about local wisdom. In this children's storybook, there are two themes, namely traditional games and traditional Mandailing Batak musical instruments with a simple writing style and illustrations that complement understanding of the text content. The following is the design of a bilingual digital children's story book based on local wisdom.







Bilingual Children's Story Book Design of Mandailing Batak Traditional Music



Figure 2. Design of Gigital Book of Bilingual Children's Stories of Mandailing Batak Traditional Games



### 3. Development

The development stage is the implementation process of the product design that has been prepared. At this stage, the validation process is carried out by media experts, material experts and linguists through questionnaire instruments to obtain assessments, suggestions, and improvements to aspects that are still lacking. The results of the input are then used as the basis for making revisions, so that the media products developed can be declared to meet the eligibility criteria. The next stage is the implementation of product trials, which is carried out by distributing questionnaires to teachers and twenty students from the same group. After the book development process is complete, the next step includes feasibility testing and practicality testing. The feasibility test was carried out through validation by media experts, material experts and linguists by involving three experts in their fields. The validation results obtained from the three validators are presented in the following table:

*Table 3. Material Expert Validation Results*

<b>Category</b>	<b>Number</b>
Total Score	38
Maximum Score	40
Percentage	100 %
Percentage Score	95%

Based on the results of the feasibility test validation obtained from the material experts, the interactive digital book media for bilingual children's stories based on local wisdom developed is declared to meet the criteria very feasible. This shows that the content of the material presented in the media is in accordance with aspects of scientific substance, clarity of concepts, and relevance to learning objectives, especially in efforts to revitalise Mandailing Batak language. Thus, this digital book is considered capable of being an effective alternative teaching material to support the learning process of understanding and using Mandailing Batak. In addition, the results of validation conducted by media experts also provide an overview of the quality of product development from a technical perspective, appearance, and ease of use. This assessment aims to ensure that the interactive digital book of bilingual children's stories based on local wisdom is not only superior in terms of content but also has good visual quality and usability so that it is attractive to students. The results of validation from media experts on the development of digital storybooks can be seen in more detail in Table 4 below.

*Table 4. Media Expert Validation Results*

<b>Category</b>	<b>Number of</b>
Total Score	55
Maximum Score	60
Percentage	100 %
Percentage Score	91,66%

Based on the percentage of feasibility test validation results obtained from media experts, it can be concluded that the interactive digital book of bilingual children's stories based on local keraifan is included in the category very feasible to be used as a means of revitalising Mandailing Batak language. After that, the next stage is the presentation of linguist validation results.

*Table 5. Results of Language Expert Validation*

<b>Category</b>	<b>Number of</b>
Total Score	58
Maximum Score	60
Percentage	100 %
Percentage Score	96,66%

Based on the results of validation conducted by linguists, the interactive digital book of bilingual children's stories based on local wisdom is declared to have met the linguistic criteria with the category "very feasible". The assessment includes several aspects, including: accuracy of sentence structure, clarity of diction, readability of text, consistency in the use of spelling according to the General Guidelines for Indonesian Spelling (PUEBI), and language suitability with the development level of students. In general, linguists assessed that the Indonesian language and Batak Mandailing language used in the interactive digital book of local wisdom-based bilingual children's stories are communicative, simple, and easily understood by elementary school-age children. In addition, the use of varied vocabulary but still according to the context of the story is considered to be able to enrich children's language knowledge while instilling moral values contained in the narrative. Some of the inputs given by the validators relate to the adjustment of punctuation and the selection of some terms to be more consistent with good and correct Indonesian language rules.

Furthermore, the results of the digital book assessment from the teacher's response to the interactive digital book of bilingual children's stories based on local wisdom can be seen from table 6 as follows:

*Table 6. Teacher Response Assessment Results*

<b>Category</b>	<b>Number</b>
Total Score	115
Maximum Score	120
Percentage	100 %
Percentage Score	95,83%

Based on the results of the assessment conducted by two teachers on digital books, it was concluded that the products developed were included in the category of very feasible to use in learning. The teacher's assessment includes several aspects, including: content suitability with learning objectives, text readability, display attractiveness. The first teacher assessed that this media was able to help students understand Mandailing Batak language through the presentation of simple stories,

interesting illustrations, and the use of language that was easy to understand. The second teacher added that this media is very practical to use in the classroom, because in addition to presenting material that is in accordance with the needs of children, it can also increase reading interest and can revitalise Mandailing Batak language.

#### 4. Implementation

This implementation stage is a large group trial stage conducted on VA class students totalling 20 people, the technique carried out during implementation is an initial test when the researcher makes an observation in the form of a Pretest question about Mandailing Batak language aims to find out how much students can and understand using Mandailing Batak language. The results of students' understanding of Mandailing Batak language before and after using interactive digital books of local wisdom-based bilingual children's stories are as follows:

*Table 7. Pretest and Posttest Results*

	Pre-test	Post-test	N-Gain	N-Gain Percent
Score	1481	1885	0,7601	76,01
Average	74,05	94,25		
Ket	-	-	High	Effective

Based on the results of the N-gain test calculation, the average N-gain value of 0.7601 is included in the High category. The N-gain category can be determined based on the N-gain value in the form of percent (%). Below is the division of the gain value category.

*Table 8. Division of Gain Score*

N-Gain Value	Category
$G > 0.7$	High
$0.3 \leq g \leq 0.7$	Medium
$G < 0.3$	Low

While at 76.01 is included in the effective category. While the distribution of N-Gain in the form of Percent (%) can refer to the category below:

*Table 9. N-Gain Effectiveness Interpretation*

Percentage (%)	Interpretation
< 40	Not Effective
40-55	Less Effective
56-75	Moderately Effective
>76	Effective

(Sukarelawan, ddk 2024)

Based on the explanation above, it can be concluded that the use of interactive digital books of local wisdom-based bilingual children's stories is effective in revitalising Mandailing Batak language in VA UPTD class students. SD Negeri 13 Langgapayung.

## 5. Evaluation

The evaluation stage is obtained from the validation results of material experts, media experts and linguists as well as from teachers and trials on students. Evaluation is carried out to measure and improve the feasibility of interactive digital books of local wisdom-based bilingual children's stories. This interactive digital book was created to overcome the problems of students who cannot use Mandailing Batak language. With this digital book, students are more practical to learn Mandailing Batak language.

## CONCLUSION

Based on the results of research on the development of interactive digital books of local wisdom-based bilingual children's stories using the ADDIE model, it can be concluded that the products produced are in the very feasible category. This is evidenced by the validation results provided by material experts, linguists and media experts, who assessed that the content, appearance, and technical feasibility were in accordance with digital book development standards. This digital book not only fulfils the feasibility aspect, but also makes a real contribution in introducing Mandailing Batak language to students. Thus, this digital book can be used as an innovative alternative to support the preservation of regional languages in the midst of the development of educational technology. In addition, Mandailing Batak language-based interactive digital books are also considered effective for fostering students' interest in learning, because they are packaged with an attractive appearance and communicative language. The existence of this media is expected to strengthen students' understanding of Mandailing vocabulary, expressions, and cultural values contained in it. For future researchers, the development of similar digital books can be directed to a more interactive form, such as animation or digital video, so that it has greater appeal and can reach a wider range of learners.

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