

Development of Bilingual Storybooks to Enhance English Vocabulary Acquisition in Children Aged 4-5 Years

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ABSTRACT

This study aims to: (1) develop children's storybooks based on semantic theory and language development indicators and (2) assess their effectiveness in improving vocabulary acquisition in 4-5-year-old children. The study involved three experts (material, media, and language experts) and 25 K1 students. Data were collected through observations, pretests, and posttests to measure children's abilities before and after using the storybooks. Results from the Paired Sample T-test showed significant improvements. The N-gain scores for both series were above 0.7, indicating a high improvement category. These findings conclude that bilingual storybooks effectively enhance English vocabulary acquisition in children aged 4-5 years.

INTRODUCTION

In today's era of globalization, bilingual communication is not only an essential skill but also provides significant benefits for children's development. Language proficiency is a crucial aspect of a child's growth, encompassing listening, speaking, reading, and writing. One effective way to enhance language skills is through storytelling, which allows children to express ideas and understand concepts better (Sudarti et al., 2023)

Early childhood (ages 1-5) is a critical period for language development. Children with limited communication skills are more vulnerable to cognitive delays. Some studies suggest that bilingualism can pose challenges, such as pronunciation difficulties, double learning burdens, or even the risk of forgetting their native language. However, many experts also argue that early exposure to a second language can enhance cognitive abilities and brain structure (Bassetti & Cook, 2011)

Currently, many parents compete to enroll their children in bilingual or international schools. According to ISC Research (2018), Indonesia has 198 international schools with more than 61,000 registered students (News Desk (The Jakarta Post), 2018). One method used in bilingual education is storytelling, which has been proven effective in improving children's language skills. However, this technique also has challenges, such as teachers' lack of confidence, unengaging storytelling, and limited active interaction from children (Ratnasari, 2017).

This study was conducted at TK Mentari Preschool Jakarta, which implements bilingual learning. Observations showed that more than five children in a single class had difficulties with English. They struggled to understand questions, respond correctly, and remember new vocabulary. The lack of exposure to English in their environment also hindered their confidence in speaking.

An effective strategy for improving second-language acquisition is the gradual introduction of vocabulary. Therefore, this study aims to develop "Bilingual Storybooks as a Means of Enhancing English Vocabulary Acquisition in Children Aged 4-5 Years." These books are expected to help children familiarize themselves with English vocabulary while maintaining Indonesian as their primary language, providing a strong foundation for future English learning.

LITERATURE REVIEW

Language Proficiency

Basic language acquisition skills form the foundation for mastering human language. It involves the process of learning a language. The nativist theory suggests that language is an innate part of human genetics, and children naturally acquire it as they grow. This theory argues that children are born with an inbuilt ability to understand language rules, making it easier for them to learn their native language (Goldstein & Naglieri, 2011).

Despite differences in culture and language, children follow similar developmental patterns in acquiring language because of this natural ability.

A child's language development is strongly influenced by their environment and the stimulation they receive, reinforcing the idea that infants have an inborn capacity to learn language. Language is essential for communication, helping children express thoughts and share information. However, not all children develop language skills effectively. Some face challenges, such as difficulty understanding conversations or struggling to respond when speaking.

Language Acquisition

The process of learning language or vocabulary is called language acquisition. This stage occurs in the brain (Iskandarwassid & Sunendar, 2016). Language acquisition happens during early childhood, when a person learns their first language or mother tongue. It is influenced by biological, cognitive, and social factors. Initially, language learning happens quickly and unconsciously, then continues in a social context. It involves imitation and can occur anytime, anywhere, and for everyone.

In psycholinguistics, language learning is defined in three ways (Musfiroh, 2017). First, acquisition is an unconscious process where words are learned naturally through exposure. Later, this learning can be refined in a structured setting. Second, language acquisition refers to gaining fluency in both native and additional languages effortlessly, without formal instruction. Lastly, some believe language acquisition happens either unintentionally or as a subconscious goal.

Psycholinguists suggest that children create rules as they learn language. For example, they assume past tense is formed by adding -ed to verbs and plurals by adding -s, applying these rules universally even when exceptions exist. As noted earlier, psycholinguistics often looks for adult-like patterns in children's speech (Crain, 2010).

Vocabulary Selection

This picture book was designed to introduce children to English vocabulary using multiple language sets. The selection of words was guided by semantic field theory, which organizes words into related groups rather than isolated lists (Gao & Xu, 2013).

Unlike unstructured vocabulary collections, semantic field theory views language as a network of interconnected words, making vocabulary acquisition more effective (Changhong, 2010). This theory explores relationships between word categories, illustrating how language components form a cohesive system. For example, words like pen, eraser, and pencil belong to the "stationery" category, while facial features such as eyebrows, nose, and lips form another semantic field (Boran, 2018).

This study examines and refines existing bilingual storybooks to enhance vocabulary learning for children aged three to four. The revised version applies multiple semantic field theory to carefully select words, ensuring a structured and meaningful introduction to English vocabulary. Below is the vocabulary selection based on this approach.

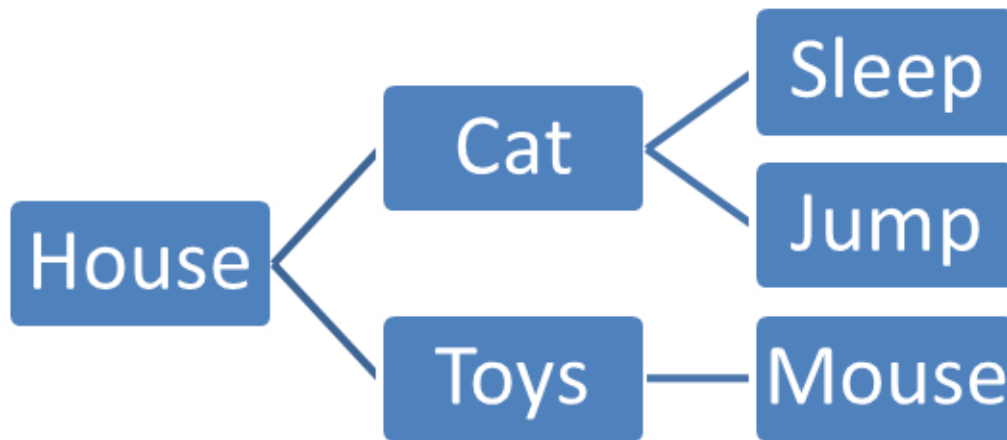


Figure 1. Story Model Vocabulary (Mind Mapping Tony Buzan)

METHODOLOGY

The model used in this development research is the ADDIE model (Analyze, Design, Develop, Implement, and Evaluate) because of its systematic steps, clear framework, and the evaluation conducted at each phase, which ensures the production of an effective, creative, and efficient product (Siwardani et al., 2015).

The development model used in this research follows the Research and Development (R&D) approach. The R&D method is a research approach used to develop a specific product and test its effectiveness (Sugiyono, 2009). Development models are categorized into three types: conceptual, procedural, and physical models.

This research primarily focuses on the development of a procedural model; however, the procedure is also documented in a guideline book. The guideline book additionally contains the conceptual model in the form of a syllabus. While each of these three models has distinct components, they are interconnected within a unified model.

The objective of this study is to produce a product that is already existing but refined, making it more effective in supporting the learning process in schools. The product developed in this study is a bilingual storybook designed to enhance the vocabulary acquisition of children aged 4-5 years.

The findings of this study required the researcher to conduct observations during the data collection and analysis stage. This research employs both qualitative and quantitative approaches, based on the predetermined research framework established in this study.

RESEARCH RESULT

Needs Analysis Result

Needs analysis was conducted to understand the learning media that can support the development of English language skills for children aged 4–5 years at Mentari Jakarta. This process included interviews with kindergarten teachers and direct observations of the teaching methods used. The observation results revealed that there is no systematic approach to teaching English vocabulary. The methods currently applied include singing, memorizing with flashcards, and reading English storybooks, but these activities are not integrated with the use of the Indonesian language.

In addition to observations, interviews with students and teachers revealed that teachers are aware of the limitations in their methods for teaching English vocabulary. One of the main challenges is the teachers' limited English proficiency, making it difficult for them to explain word meanings or effectively deliver stories to children. The frequency of English vocabulary introduction is also irregular, as daily interactions between teachers and children primarily use Indonesian.

The vocabulary taught generally consists of high-frequency words that appear frequently in texts and can be recognized without needing to be spelled (sight words). These words are introduced through word cards without images, leading children to memorize them without fully understanding their meanings. Furthermore, the learning media used, including English storybooks, fail to engage children. During storytelling sessions, children tend to lose interest because they struggle to understand the content being presented.

Model Development Design

Based on the analysis results, teachers felt the need for additional learning media to help children understand English vocabulary more effectively. Discussions with teachers led to the decision that the most suitable medium is a bilingual storybook specifically designed for early childhood education. This book combines the use of English and Indonesian with a narrative structure aligned with learning objectives.

The vocabulary in the bilingual storybook is structured based on words commonly used by children in daily conversations. These words are categorized into nouns, verbs, adjectives, and adverbs. Nouns are the most dominant category, aligning with early childhood language acquisition patterns (Musfiroh, 2017). The selection of vocabulary also considers clarity and ease of understanding for young learners.

In early childhood education, storybooks play a crucial role as educational media. Children tend to be more engaged with books that feature attractive illustrations rather than plain text. Therefore, storybooks are expected to enhance the effectiveness of English vocabulary learning. Since children understand images more easily than words, this bilingual storybook is designed with engaging illustrations and content tailored to early childhood educational needs.

The book's design is based on needs analysis, which indicated that children require a sufficiently large size for easy visibility, yet one that remains comfortable for teachers to hold while reading aloud. Therefore, the book is square-shaped, made with thick cardboard, and features smooth transitions between illustrations across pages. An analysis of the preferences of children aged 4–5 years revealed that they prefer animal characters over human characters. Based on expert recommendations, bright colors such as red, green, yellow, blue, and orange were used to enhance visual appeal. These findings align with Effendy's (2013) research, which states that bright colors are more easily recognized and attractive to children.

Model Feasibility (Theoretical and Empirical)

The theoretical and empirical testing has been conducted on the physical development results, provided as the final draft. The theoretical testing was carried out by multiple experts using the validation method, while the trial implementation was conducted on K1 students at Mentari Preschool Jakarta.

1. Theoretical Feasibility

Table 1. Expert Material Validator Assessment Results

Validator	X score	\bar{X}_i	S_{bi}	Category
Material Expert	76	63	14	Feasible

The assessment by the material expert on the bilingual storybook received a score of 76, with $\bar{X}_i = 63$ and $S_{bi} = 14$. The calculation shows $63 < 76 \leq 88.2$, indicating that the book is feasible for trial implementation with children aged 4–5 years.

Table 2. Expert Media Validator Assessment Results

Validator	X score	\bar{X}_i	S_{bi}	Category
Media Expert	113	72	16	Highly Feasible

The bilingual storybook received a score of 113 from the media expert, with $\bar{X}_i = 72$ and $S_{bi} = 16$. The calculation shows $113 > 96.85$, categorizing the book as highly practical and highly feasible for trial implementation with children aged 4–5 years.

Table 3. Expert Language Validator Assessment Results

Validator	X score	\bar{X}_i	S_{bi}	Category
Language Expert	37	27	6	Highly Feasible

The graph indicates that the bilingual storybook received a score of 37 from the language expert, with $S_{bi} = 6$ and $\bar{X}_i = 27$. The calculation results, $30.6 < 37$ and $37.8 < 37.8$, confirm that the book is linguistically practical and feasible for trial implementation with children aged 4–5 years.

2. Empirical Feasibility

Table 4. The results of the paired sample t-test for storybook series 1

		Paired Samples Test							
		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Post Test - Pretest	60.04000	11.36324	2.27265	55.34948	64.73052	26.419	24	0.000

Based on the table above, the significance value obtained is 0.000, which is smaller than 0.05. Therefore, H₀ is rejected, and H_a is accepted. This indicates that there is a difference in the average learning outcomes before (Pre-Test) and after (Post-Test) using the bilingual storybook, meaning that this medium has an effect on improving the English vocabulary of early childhood learners.

Furthermore, based on the degrees of freedom (df) and the significance level ($\alpha/2$), it is known that df is 24, while the value of 0.05/2 is 0.025. Since the t-value of 26.419 is greater than the t-table value of 2.060, H₀ is again rejected, and H_a is accepted. Thus, it can be concluded that there is a significant difference between the Pre-Test and Post-Test results, indicating that the use of bilingual storybooks contributes to the improvement of the vocabulary of children aged 4-5 years.

Table 5. The results of the paired sample t-test for storybook series 2

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Post Test - Pretest	59.68000	8.02974	1.60595	56.36549	62.99451	37.162	24	0.000

The obtained significance value is 0.000, which is smaller than 0.05, thus H₀ is rejected, and H_a is accepted. This indicates that there is a difference in the average learning outcomes before (pre-test) and after (post-test) using the bilingual storybook, meaning that this medium has an effect on improving the English vocabulary of early childhood learners.

Furthermore, based on the degrees of freedom (df) and the significance level ($\alpha/2$), it is known that df is 24, while the value of 0.05/2 is 0.025. With a t-value of 37.162, which is greater than the t-table value of 2.060, H₀ is again

rejected, and H_a is accepted. Thus, it can be concluded that there is a significant difference between the pre-test and post-test results, indicating that the use of bilingual storybooks contributes to the acquisition of vocabulary in children aged 4-5 years.

Table 6. The results of N-gain score for storybook series 1

No	Nama	PreTest	PostTest	<i>N-gain Score</i>
1	ACAZ	52	109	1,19
2	ART	44	97	0,95
3	AAB	36	112	1,19
4	AIA	38	111	1,18
5	AFM	34	113	1,20
6	APS	53	98	0,96
7	AADP	39	116	1,26
8	BKA	50	117	1,34
9	GAS	53	91	0,81
10	HY	56	117	1,39
11	HZP	55	118	1,40
12	KSSA	57	96	0,91
13	LCB	40	99	0,98
14	MSK	41	113	1,22
15	MAA	57	107	1,16
16	QFAL	53	104	1,09
17	RAID	54	106	1,13
18	RKK	52	102	1,04
19	SNZ	46	114	1,26
20	SAM	41	111	1,19
21	SMW	49	112	1,24
22	SRPS	42	102	1,03
23	SMA	43	110	1,18
24	SKS	54	111	1,24
25	TA	49	103	1,06
	Rata-Rata	47,52	107,56	1,14
	Minimal			0,81
	Maksimal			1,40

Based on the results of the N-gain score test above, the average N-gain score for the pre-test and post-test is 1.14, which is greater than 0.7, indicating a high category. The minimum N-gain value is 0.81, while the maximum is 1.40. Therefore, it can be concluded that the use of bilingual storybooks is effective in enhancing the acquisition of English vocabulary in children aged 4-5 years.

Table 7. The results of N-gain score for storybook series 2

No	Nama	PreTest	PostTest	N-gain Score
1	ACAZ	56	111	1,25
2	ART	52	104	1,08
3	AAB	43	115	1,26
4	AIA	55	117	1,38
5	AFM	38	98	0,97
6	APS	40	100	1,00
7	AADP	39	111	1,18
8	BKA	57	114	1,33
9	GAS	35	98	0,97
10	HY	35	115	1,23
11	HZP	36	95	0,92
12	KSSA	53	97	0,94
13	LCB	33	93	0,90
14	MSK	49	115	1,29
15	MAA	49	116	1,31
16	QFAL	53	101	1,02
17	RAID	54	101	1,02
18	RKK	44	99	0,98
19	SNZ	51	104	1,08
20	SAM	50	111	1,22
21	SMW	54	110	1,22
22	SRPS	45	105	1,09
23	SMA	48	108	1,15
24	SKS	50	112	1,24
25	TA	48	109	1,17
	Rata-Rata	46,68	106,36	1,13
	Minimal			0,90
	Maksimal			1,33

Based on the results of the N-gain score test above, the average N-gain score for the pre-test and post-test is 1.17, which is greater than 0.7, indicating a high category. The minimum N-gain value is 0.90, while the maximum is 1.33. Therefore, it can be concluded that the use of bilingual storybooks is effective in enhancing the acquisition of English vocabulary in children aged 4-5 years.

DISCUSSION

This study resulted in the development of a bilingual storybook specifically designed to help children aged 4-5 years enrich their English vocabulary. In addition to the storybook, a usage guide was also provided to ensure that teachers and parents can utilize it optimally. The product

development process involved a series of expert validations, followed by field trials to assess its effectiveness.

The initial evaluation was conducted through field trials involving 25 children as research participants. During the main testing phase, the book's effectiveness was measured using the N-gain score calculation to analyze vocabulary improvement after the treatment. The results indicated that after using the bilingual storybook, children's average scores increased significantly, demonstrating the effectiveness of this medium in enriching their English vocabulary.

This study aligns with the findings of Inés & González (2010), who stated that storytelling activities enhance children's comprehension of story content while expanding their vocabulary. Additionally, Ellis and Brewster (2014) emphasized that stories are not only a source of entertainment for children but also a means to boost motivation, stimulate critical thinking, and help them develop a positive attitude toward foreign languages and new cultures.

During the trial process, children exhibited highly positive responses. They appeared enthusiastic and eager to listen to the stories read by their teacher. These findings align with Mart (2012), who suggested that using stories in early childhood English learning helps broaden children's perspectives, increase learning motivation, and foster awareness of foreign language use.

CONCLUSIONS AND RECOMMENDATIONS

The bilingual storybook, presented in Indonesian and English, helps children learn both languages at the same time. It measures 26 x 26 cm, making it large enough for clear and engaging illustrations. The book is printed on matt paper for a comfortable reading experience and has a hardcover with rounded corners to ensure children's safety. The main characters are animals, illustrated in bright colors to capture children's interest. The book introduces different types of words—nouns, verbs, and adjectives—helping children expand their vocabulary in a fun and interactive way. The final product consists of two storybooks, *Kelly Likes to Help* and *Kelly Learns to Share*, along with a guidebook for teachers. Experts have reviewed these books and found them suitable for early childhood education. With engaging content tailored to young learners, these books effectively support language development.

ADVANCED RESEARCH

Further research is needed with a more in-depth approach or more innovative methods to optimize the utilization of this study's findings in a broader context.

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