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The Effect of Card Box Game Strategy on the Speaking Ability of Young Children

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ABSTRACT

This study investigated the effect of a card box game strategy on the speaking ability of young children in Group A (aged 4–5 years) at One-Roof Kindergarten SDN 146 Kayu Laut, Mandailing Natal Regency, Indonesia, in the 2025–2026 academic year. The intervention addressed low speaking skills characterized by limited vocabulary, reluctance to express opinions, and minimal oral interaction among peers. A quantitative approach with a quasi-experimental one-group pretest–posttest design was employed. Fifteen children participated in four sessions of learning activities using a card box game, an educational medium containing thematic pictures and symbols designed to stimulate oral language. Speaking ability was assessed through observation on three indicators: mentioning familiar words, answering questions appropriately, and imitating writing and pronouncing letters. The mean pretest score was 48.00, with most children categorized as "Not Yet Developed" or "Starting to Develop.'' After the intervention, the mean posttest score increased to 82.67, with a predominance of the "Very Well Developed" category. A paired-samples t-test yielded t(14) = 15.53, exceeding the critical value at the 5% significance level, indicating a statistically significant improvement. These findings demonstrate that the card box game strategy is an effective, play-based approach for enhancing young children's speaking ability.

Keywords: Card Box Game, Speaking Ability, Language Stimulation, Early Childhood Education

I. INTRODUCTION

Early childhood is widely recognized as a critical developmental period, often referred to as the "golden age," during which stimulation across cognitive, language, social–emotional, physical, and moral domains lays the foundation for later learning and life outcomes. In the Indonesian context, Early Childhood Education (Pendidikan Anak Usia Dini, PAUD) is mandated to provide holistic stimulation that supports children's adaptation and participation in family, school, and broader community environments. Within this holistic framework, language—particularly speaking ability—plays a central role because it mediates children's communication, social interaction, and understanding of their surroundings (Benson et al., 2025).

Speaking ability in early childhood encompasses not only the articulation of sounds and words but also the capacity to express ideas, feelings, and needs in a coherent and socially appropriate manner. Children who develop robust speaking skills are better able to participate in learning activities, negotiate with peers, and build positive relationships with adults. Conversely, limited speaking skills can constrain children's participation in classroom discourse, reduce their confidence, and negatively affect their readiness for primary school. The development of speaking ability is thus a key indicator of successful early childhood education (Liesbeth et al., 2026).

Language development in young children is strongly shaped by environmental factors. The family is the first and primary context in which children acquire their first language through interaction, imitation, and exposure to rich linguistic input. As children enter early childhood education settings, teachers and peers become additional, influential language partners. Environments that are rich in meaningful conversations, stories, and verbal play tend to accelerate language growth, whereas environments with limited verbal interaction or monotonous teaching approaches may inhibit language development. Consequently, early childhood teachers are expected to provide engaging, interactive, and linguistically stimulating learning experiences (van Zwet et al., 2025).

Play is a natural medium through which young children learn. Theories of child development, including those of Piaget and Vygotsky, emphasize that children construct knowledge through active engagement with their environment and through social interaction. Play-based learning aligns with these theoretical perspectives by

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offering opportunities for exploration, problem-solving, imagination, and communication. In the language domain, play offers authentic contexts for children to use words, negotiate roles, tell stories, and respond to peers' utterances. Integrating educational content into play activities is therefore widely advocated as a developmentally appropriate practice in early childhood education (Kobomalla & Samarawickrama, 2025).

Despite these theoretical and policy frameworks, classroom practice does not always reflect optimal conditions for language stimulation. Preliminary observations at One-Roof Kindergarten SDN 146 Kayu Laut in Mandailing Natal Regency revealed that many children in Group A (aged 4–5 years) showed delays in speaking ability. During routine classroom activities, children tended to be quiet, hesitant to answer questions, and reluctant to express opinions. Some children avoided eye contact or preferred to play alone rather than engage in conversations with peers. The vocabulary used by many children was limited, and they experienced difficulty naming objects in their environment, responding appropriately to questions, or imitating the pronunciation of letters and words introduced by the teacher.

These challenges were compounded by limitations in the learning media and strategies used in the classroom. Instruction tended to rely on conventional methods such as teacher explanations and repetition, with minimal use of attractive, interactive media. Consequently, children were often passive during learning activities and were not sufficiently encouraged to experiment with language or practice speaking in varied contexts. The initial assessment conducted by the researcher indicated that, out of 15 children in Group A, only one child was categorized as having "Very Well Developed" speaking ability, while a substantial number were still in the "Not Yet Developed" category (Metasari & Suparno, 2025).

These conditions highlight the urgent need for innovative, play-based learning strategies that can increase children's motivation to speak and provide structured yet enjoyable opportunities for language practice. One promising approach is the use of educational games that combine visual stimuli, physical manipulation, and social interaction. Among such games, the card box game has emerged as an accessible and adaptable medium. The game consists of a box containing picture or word cards aligned with classroom themes. Children manipulate the cards, name the items depicted, respond to teacher prompts, and engage in simple dialogues related to the images (Nataliya, 2022).

The card box game has several potential advantages for stimulating speaking ability. First, the visual nature of the cards provides concrete referents that support word retrieval and comprehension, which is crucial for children with limited vocabularies. Second, the act of drawing and handling cards introduces an element of surprise and excitement that can increase engagement and reduce anxiety when speaking. Third, the game can be played in pairs or small groups, fostering peer interaction and collaborative talk. Fourth, teachers can flexibly adjust the level of difficulty by varying the vocabulary, sentence patterns, and types of questions posed (Rosmidar Rosmidar et al., 2024).

Although card- and picture-based games are not entirely new in Indonesian early childhood settings, their systematic use as a structured strategy for stimulating speaking ability appears to be limited. Many teachers are not fully familiar with how to design, implement, and assess such games in a way that aligns with competency standards and developmental indicators. Consequently, there is a gap between the potential of educational games and their actual utilization in classrooms.

In response to this situation, the present study was conducted to examine the effect of a structured card box game strategy on the speaking ability of children in Group A at One-Roof Kindergarten SDN 146 Kayu Laut. The study focused on three key indicators of speaking ability: (1) mentioning familiar words (such as the names of classroom objects), (2) answering questions appropriately, and (3) imitating writing and pronouncing letters. The intervention aimed not only to improve children's observable performance on these indicators but also to enhance their confidence and willingness to participate verbally in classroom activities.

This study employed a quasi-experimental one-group pretest–posttest design to provide empirical evidence regarding the effectiveness of the card box game strategy. Specifically, it addressed the following questions: (i) How does the use of the card box game influence children's speaking scores from pretest to posttest? (ii) How does the distribution of developmental categories change after several sessions of card box game activities? And (iii) to what extent can the observed changes be interpreted as educationally meaningful improvements in early speaking ability?

The findings are expected to contribute to the literature on play-based language stimulation in early childhood and to offer practical guidance for teachers seeking to enrich their instructional repertoire. In the broader context of PAUD in Indonesia, this study provides an example of how low-cost, locally adaptable media can be harnessed to support key developmental competencies, such as speaking ability.

II. METHODS

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A. *Research Design*

This study employed a quantitative approach with a quasi-experimental design, specifically a one-group pretest–posttest design. In this design, a single group of participants was measured on the dependent variable (speaking ability) before and after an intervention (card box game strategy). Although the absence of a control group limits the ability to control for all extraneous variables, this design is appropriate in naturalistic educational settings where random assignment is difficult and the primary goal is to evaluate the practical effectiveness of an instructional strategy within an existing class (Creswell, 2021).

The basic structure of the design can be represented as:

$O_1 – X – O_2$

where O_1 denotes the pretest observation of speaking ability, X represents the implementation of the card box game strategy over several sessions, and O_2 denotes the posttest observation.

B. Research Site and Participants

This study was conducted at One-Roof Kindergarten SDN 146 Kayu Laut, located in Mandailing Natal Regency, Indonesia. This institution integrates kindergarten and primary school within one complex, allowing for continuity between early childhood and primary education. Group A, comprising children aged approximately 4–5 years, was the focus of this study.

The participants were 15 children enrolled in Group A, comprising seven boys and eight girls. All children in the class participated in the intervention and assessments, reflecting the intact-group nature of the sample. The selection of this group was based on initial observations indicating notable delays in speaking ability among several children, as well as the willingness of the classroom teacher and school administrators to collaborate in implementing the card box game strategy (Arikunto, 2017).

C. Variables

The independent variable in this study was an instructional strategy based on a card box game. This strategy involves the systematic use of a box containing picture or word cards aligned with the weekly themes of the kindergarten curriculum. The dependent variable was children's speaking ability, which was operationalized through observable behaviors on three indicators:

- Mentioning familiar words (e.g., naming classroom objects).
- Answering questions appropriately (e.g., responding to simple "who,'' "what,'' and "where" questions).
- Imitating writing and pronouncing letters (e.g., saying letter names or sounds while tracing or pointing).

These indicators reflect the core components of early speaking ability and are consistent with the national early childhood developmental standards.

D. Instruments

Data on speaking ability were collected using an observation sheet developed based on existing early childhood language development indicators. The instrument included items corresponding to the three indicators described above. For each child, the teacher–researcher recorded performance during structured activities and rated it using a four-level scale commonly used in Indonesian PAUD assessments:

Not Yet Developed (NYD / Belum Berkembang, BB)
Starting to Develop (StD / Mulai Berkembang, MB)
Developing as Expected (DE / Berkembang Sesuai Harapan, BSH)
Very Well Developed (VWD / Berkembang Sangat Baik, BSB)

These qualitative categories were subsequently converted into numerical scores according to the scoring scheme specified in the thesis (e.g., ascending scores for higher developmental levels), thereby enabling a quantitative analysis of children's progress.

The instrument was reviewed for content validity by early childhood education experts associated with the postgraduate program to ensure that the items were appropriate for the target age group and adequately represented the construct of speaking ability. The teacher was trained to apply the rating criteria consistently during both the pretest and posttest observations.

E. Procedure

The research procedure comprised three main stages: pretest, intervention, and posttest.

Pretest stage.

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Before implementing the card box game strategy, the teacher conducted a pretest assessment of children's speaking ability during regular classroom activities. Using an observation sheet, the teacher observed each child's performance on the three indicators: mentioning familiar words, answering questions, and imitating writing and pronouncing letters. Observations were conducted in a naturalistic manner and integrated into typical learning routines to minimize children's anxiety and capture authentic behavior. The pretest scores established a baseline profile of the class, which showed that most children were in the "Not Yet Developed" or "Starting to Develop" categories.

Intervention stage (Sugiyono., 2019).

The intervention consisted of four learning sessions using a card box game strategy. Each session was designed around a specific theme that aligned with the kindergarten's curriculum (for example, school environment, household objects, or animals). The general structure of each session was as follows:

Introduction. The teacher introduced the topic and briefly demonstrated how to use the card box, ensuring that the children understood the rules of the game.

Gameplay. The children took turns drawing cards from the box. For each card, the teacher prompted the child to:

Name the picture or word on the card (mentioning familiar words),

Answer simple questions about the card (e.g., "What is this?", "Where do you see this object?", and "What color is it?"), and

When applicable, imitate the pronunciation and writing of the initial letter or the entire word.

Peer interaction. The children were encouraged to support their peers by listening, repeating words together, or adding simple comments. This created opportunities for spontaneous dialogues and turn-taking.

Feedback and reinforcement. The teacher provided immediate positive feedback for correct responses and gentle scaffolding for children who struggled, such as modeling correct pronunciation, providing cues, or breaking tasks into smaller steps.

Throughout the four sessions, the teacher gradually increased the linguistic complexity by introducing more varied vocabulary and encouraging children to use short sentences instead of single-word responses. At the same time, the teacher maintained a playful, non-threatening atmosphere to sustain children's motivation and reduce the fear of making mistakes.

Posttest stage.

After completing the four intervention sessions, the teacher conducted a post-test assessment using the same observation instrument. The assessment captured changes in each child's performance on the three speaking indicators. To ensure comparability, the post-test was administered under conditions similar to the pre-test, with observations integrated into classroom activities rather than isolated testing situations.

F. Data Analysis

Quantitative data derived from the observation ratings were analyzed using descriptive and inferential statistics. Descriptive analysis included the calculation of mean scores and the distribution of children across developmental categories (BB, MB, BSH, and BSB) for both pretests and post-tests. These descriptive measures provided an overview of the overall level of speaking ability and its progression following the intervention.

To test whether the observed changes in speaking ability were statistically significant, a paired-samples t-test was conducted to compare the pretest and post-test mean scores. The significance level was set at 0.05, and the degrees of freedom were based on the number of participants ($n = 15$, $df = 14$). The t-test evaluated the null hypothesis that there was no difference between the pretest and post-test means against the alternative hypothesis that the card box game strategy led to a meaningful improvement in children's speaking ability (Miles, M. B., & Huberman, 2014).

III. RESULTS AND DISCUSSION

A. *Descriptive Results*

The descriptive analysis revealed substantial improvements in children's speaking ability following the implementation of the card box game strategy. At the pretest stage, the mean speaking score for the 15 children was 48.00. This relatively low score reflected the predominance of ratings in the "Not Yet Developed" (BB) and "Starting to Develop" (MB) categories. Many children were unable to consistently name common classroom objects, often remained silent when asked questions, and exhibited difficulty imitating the pronunciation and writing of letters introduced by the teacher.

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After four sessions of card box game activities, the posttest mean score increased to 82.67. This increase of more than 34 points indicates a considerable shift in overall speaking performance. In the posttest, the majority of children were rated in the "Very Well Developed" (BSB) category, characterized by the ability to mention a wider range of familiar words, answer simple questions appropriately, and more confidently imitate the writing and pronunciation of letters. The remaining children were mostly in the "Developing as Expected" (BSH) category, with very few categorized as "Not Yet Developed.''

Table 1 illustrates the change in the distribution of children across developmental categories on one key indicator (i.e., mentioning familiar words, such as naming school objects) between the first and fourth observations during the intervention.

Table 1. Progress in the "mentioning familiar words" indicator from first to fourth observation (n = 15).

Developmental category	Observation 1 (n)	Observation 4 (n)
Very Well Developed (BSB)	1	4
Developing as Expected (BSH)	2	4
Starting to Develop (MB)	4	6
Not Yet Developed (BB)	8	1

As shown in Table 1, at the first observation, only one child reached the BSB level in naming familiar objects, while eight children were still in the BB category. By the fourth observation, the number of children in the BSB category increased to four, and the number in the BB category decreased dramatically to one child. The MB and BSH categories also showed numerical increases, indicating that several children moved upward along the developmental continuum. These changes suggest that repeated exposure to and practice with the card box game fostered steady improvement in this specific aspect of speaking ability.

In addition to this indicator, qualitative notes recorded by the teacher indicated parallel improvements in the other indicators. The children became more responsive to teacher questions, more willing to volunteer answers without being called upon, and more accurate in imitating the pronunciation of letters associated with the cards. Although individual differences remained some children progressed faster than others the general trajectory was positive for the class as a whole.

B. *Inferential Results*

To determine whether the improvement in speaking scores was statistically significant, a paired-samples t-test was conducted on the pretest and posttest means. The analysis yielded a t value of 15.53 with 14 degrees of freedom. This value exceeded the critical t value at the 5% significance level (t-table = 2.145), indicating that the difference between the pretest and post-test scores was highly significant. Therefore, the null hypothesis of no difference was rejected, and it was concluded that the card box game strategy had a significant positive effect on children's speaking ability.

The main descriptive statistics and inferential test result are summarized in Table 2.

Table 2. Pretest and posttest speaking ability scores (n = 15).

Measure	n	Mean score	Note
Pretest	15	48.00	Baseline speaking ability
Posttest	15	82.67	After card box intervention

Paired-samples t-test: $t(14) = 15.53$, $p < 0.05$

The magnitude of the mean difference, combined with statistical significance, supports the conclusion that the intervention was theoretically promising and practically effective in the given classroom context.

C. *Discussion*

The substantial improvement in speaking scores can be interpreted in light of established theories of language development and the specific pedagogical features of the card box game. From a Vygotskian perspective, the card box game created a social context in which children's speaking was scaffolded by the teacher and

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supported by peers. When children drew a card, they were invited to name the depicted object and respond to questions. If a child struggled, the teacher provided prompts, modeled correct pronunciation, or broke the task into smaller steps. Peers, in turn, often repeated the names or added comments, offering additional linguistic input. This interactive environment functioned as a zone of proximal development in which children could perform at a higher level with assistance than they could independently at baseline (Ambarsari & Aprima, 2025).

From a cognitive standpoint, the combination of visual and verbal information in the card box game likely facilitated memory and retrieval. The images on the cards served as concrete anchors for vocabulary, thereby reducing the cognitive load associated with recalling words in the absence of contextual support. Over repeated sessions, children formed stronger associations between images, words, and meanings, which manifested in improved performance on the speaking indicators (Huang et al., 2025).

The play-based nature of the activity also contributed to children's increased willingness to speak. At the pretest stage, many children were reluctant to respond in whole-class situations, possibly due to anxiety, fear of making mistakes, or a lack of confidence. However, during the card box game, the atmosphere was more relaxed and enjoyable. Drawing a card, guessing what it showed, and sharing answers with friends introduced an element of fun that shifted the focus away from evaluation and towards exploration. As a result, children who were previously silent became more inclined to try speaking, even if their initial attempts were imperfect. Positive feedback from the teacher further reinforced this behavioral change (Waruwu et al., 2025).

The progression shown in Table 1 illustrates how repeated engagement in the game supported gradual movement from lower to higher developmental categories. Children who were initially "Not Yet Developed" in naming familiar objects benefited from repeated exposure to the same words and images, accompanied by consistent prompts and reinforcement. Over time, they gained sufficient familiarity and confidence to move into the "Starting to Develop" or even the "Developing as Expected" categories. Meanwhile, children who already had some speaking ability at baseline were challenged to extend their vocabulary and use more complex utterances, enabling them to reach the "Very Well Developed" level.

Beyond statistical significance, the findings have meaningful educational implications for early childhood practice. First, they demonstrate that relatively simple, low-cost media, such as card box games, can produce measurable gains in speaking ability when implemented systematically. In many Indonesian early childhood settings, resource limitations are cited as barriers to innovative teaching. The card box game counters this perception by showing that effective language stimulation does not necessarily require expensive equipment; instead, creativity in designing and using simple materials can yield substantial benefits.

Second, the study underscores the importance of integrating language goals into play-based activities rather than treating language instruction as a separate, decontextualized component. In the card box game, language use was embedded in meaningful tasks, such as naming objects, answering questions about everyday experiences, and relating pictures to known contexts. This alignment between linguistic tasks and children's lived experiences likely enhanced motivation and comprehension.

Third, the observable increase in children's confidence is particularly noteworthy. As the sessions progressed, children were more eager to volunteer answers, engage in short dialogues, and interact with peers using verbal communication. Such affective changes are critical, as they lay the groundwork for active participation in subsequent learning experiences, including reading readiness and more formal classroom discourse in primary school.

Although the results are encouraging, several limitations must be acknowledged. The one-group pretest–posttest design lacks a control group; therefore, it cannot fully rule out alternative explanations, such as maturation or exposure to other language activities outside the intervention. However, the relatively short duration between the pretest and post-test and the magnitude of the observed change suggest that the card box game strategy played a substantial role in the improvement.

The sample size was small (n = 15) and drawn from a single kindergarten, which limits the generalizability of the findings. Future research could replicate the study with larger samples across multiple schools, including both urban and rural settings, to determine whether similar effects are observed under different contextual conditions. Adding a comparison group that receives standard instruction without the card box game would also strengthen causal inferences.

Moreover, the present study focused on three indicators of speaking ability. Although these indicators are important, speaking is a multidimensional construct. Future studies might expand the assessment to include narrative skills (e.g., retelling simple stories), pragmatic aspects of conversation (e.g., turn-taking, politeness strategies), and more fine-grained phonological measures. Qualitative methods, such as audio recordings and

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discourse analysis, could complement quantitative scores by revealing how children's utterances become more complex and coherent over time.

Finally, this study opens avenues for exploring how card box game strategy can be adapted to support other developmental domains, such as early literacy, numeracy, and social–emotional learning. For example, cards could be designed to prompt children to count objects, identify shapes, or discuss emotions, thereby integrating multiple learning goals within a single, playful activity.

IV. CONCLUSIONS

This study examined the effect of a card box game strategy on the speaking ability of children aged 4–5 years in Group A at One-Roof Kindergarten SDN 146 Kayu Laut, Mandailing Natal Regency. Using a quasi-experimental one-group pretest–posttest design with 15 participants, the study found a marked increase in mean speaking scores from 48.00 at pretest to 82.67 at posttest. The distribution of children across developmental categories shifted significantly, with a decline in the "Not Yet Developed" category and an increase in the "Very Well Developed" category. A paired-samples t-test confirmed that this improvement was statistically significant ($t(14) = 15.53$, $p < .05$). The findings indicate that the card box game strategy is an effective, play-based approach for stimulating young children's speaking ability. By combining visual stimuli, hands-on manipulation, and guided interaction, the game creates a rich linguistic environment in which children feel motivated and supported to practice speaking. The strategy aligns with theoretical perspectives that emphasize the role of social interaction and play in language development and demonstrates that simple, low-cost media can be leveraged to address language delays in early childhood classrooms. Despite limitations related to sample size and the absence of a control group, the study provides valuable evidence for practitioners and policymakers seeking to improve language outcomes in PAUD settings. Teachers are encouraged to integrate card box games and similar educational media into their daily practice, adapting the content to local themes and children's interests. Future research with larger, more diverse samples and more comprehensive assessment tools is recommended to further validate and extend these findings.

Funding Statement

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Ethical Compliance

All procedures performed in the studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committees and the 1964 Declaration of Helsinki and its later amendments or comparable ethical standards.

Data Access Statement

A data access statement is a section in a scientific publication or research report that explains how the data used or generated in the study can be accessed by readers or other researchers. This statement aims to promote transparency, support research reproducibility, and comply with applicable open access policies.

Common Elements in a Data Access Statement:

1. Data Location: Specifies where the data are stored, for instance, in online repositories (e.g., Zenodo, Dryad, or institutional repositories).
2. Access Instructions: Provides information on how to access the data, such as direct links, Digital Object Identifier, or contact details.
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1. Open Data:
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3. No Data Available:
   - "No datasets were generated or analyzed in the current study."
4. Conditional Access:

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- "The data supporting this study are available under restricted access and can be obtained from the corresponding author upon reasonable request, with permission from the ethics committee."

Purpose of a Data Access Statement:

- Reproducibility: Enables other researchers to replicate or verify the findings.
- Collaboration: Encourages further collaboration by sharing data.
- Compliance: Adherence to the policies of funding agencies or journals that require open access to data.

Conflict of Interest Declaration

The authors declare that they have no affiliations with or involvement in any organization or entity with any financial interest in the subject matter or materials discussed in this manuscript.

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