

Development of Flapbook Media on the Ability to Recognize the Consonant Letters “b” and “d” in Children Aged 5–6 Years

*Fairuzah Shofiyah Rahmi, Dewi Komalasari, Eka Cahya Maulidiyah,
Wulan Patria Saroinsong*

Universitas Negeri Surabaya, Surabaya, Indonesia

e-mail: ¹fairuzah.21002@mhs.unesa.ac.id,

²dewikomalasari@unesa.ac.id, ³ekamaulidiyah@unesa.ac.id,

⁴wulansaroinsong@unesa.ac.id

ARTICLE INFO

Article history:

Received: August 1, 2025

Accepted: August 27, 2025

Available online on:

August 31, 2025

Keywords:

*Flapbook media, early childhood
education, letter recognition,
literacy development, ADDIE
model*

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Published by Universitas

Muhammadiyah Tangerang

ABSTRACT

This study was motivated by the lack of learning media and the absence of materials that support early childhood understanding of distinguishing the letters “b” and “d” as a foundation of language education. The research aimed to develop Flapbook media to improve the ability of children aged 5–6 years in recognizing the letters “b” and “d,” as well as to test its validity and effectiveness. The method used was Research and Development (R&D) with the ADDIE model (Analyze, Design, Development, Implement, Evaluate). The subjects were 30 children aged 5–6 years at TK Kemala Bhayangkari 1 Surabaya. Data collection techniques included questionnaires and observation, while data analysis employed the Mann-Whitney test. The Flapbook was designed in A4 size. Validation tests by material and media experts indicated that the Flapbook is feasible for use. The results showed Asymp. Sig (2-tailed) < 0.001 <

0.05, meaning the Flapbook was effective in improving children's ability to recognize "b" and "d." Repeated activities supported this improvement, suggesting its integration into early childhood curricula.

Introduction

Early Childhood Education (ECE) is a crucial initial stage in shaping children's character and foundational abilities, particularly in the aspects of language and literacy (Hasanah, 2024). One of the basic skills that must be mastered by children aged 5–6 years is the ability to recognize letters. This skill becomes the main foundation in the process of reading and writing, which is more complex at the next level of education (Riska, 2024). Therefore, providing appropriate and enjoyable literacy stimulation is highly necessary in the learning process for early childhood.

However, in practice, children often experience difficulties in distinguishing certain letters with similar shapes, such as the consonant letters "b" and "d." This difficulty generally arises due to their similar visual orientation and the still-developing visual perception abilities of young children (Riska, 2024). Based on preliminary observations at TK Kemala Bhayangkari 1 Surabaya, it was found that most children in Group B still struggled to recognize the letters "b" and "d." Teachers also stated that the learning methods used so far, such as repetitive writing or memorization, had not yielded significant results because they were monotonous and failed to capture children's attention.

To address this challenge, learning media that can stimulate children's interest in learning and active engagement in the process are required. Flapbook media is one alternative that is visual and interactive, capable of providing multisensory learning experiences (Ubaidillah et al., 2024). A Flapbook is designed with foldable features that can be opened and closed, allowing children to discover hidden information or pictures behind the flaps. This design not only stimulates children's curiosity but also aids in strengthening memory and fine motor skills (Delfiana & Setyadi, 2025).

Previous studies have proven that the use of visual and interactive media is highly effective in enhancing children's early literacy skills. Maemunah and Mas'ud (2022) revealed that visual-interactive media could increase children's understanding of letters by up to 40% more effectively than conventional methods. Meanwhile, Smith (2017) stated that a multisensory approach implemented through media such as Flapbooks can strengthen children's memory in distinguishing letter forms, including letters with similarities.

In addition to presenting material in an enjoyable way, as Handayani and Anisa (2023) noted, Flapbooks can also increase children's learning motivation by providing active learning processes rather than passively receiving information. Children are directly involved in activities such as opening flaps, observing pictures, and recognizing letters based on appealing visual contexts. This media is

highly suited to the learning characteristics of early childhood, which are concrete, visual, and exploratory in nature (Zummiassa et al., 2023; Ulfah et al., 2024). Moreover, in its digital version, Flapbooks can be developed with technological integration such as animation, sound, and augmented reality elements, further enriching children's learning experiences (Bintoro et al., 2022; Amanda et al., 2024).

Based on the problems identified in the field, supported by theoretical reviews and previous research findings, this study aims to develop Flapbook media as a learning tool for recognizing the consonant letters "b" and "d" in children aged 5–6 years. This research not only emphasizes the development of visually and interactively designed media but also evaluates its feasibility and effectiveness in enhancing early literacy skills. With an enjoyable approach aligned with children's learning styles, the Flapbook is expected to serve as an appropriate solution to overcome the difficulties children face in recognizing and differentiating the letters "b" and "d."

Methods

This research employed the Research and Development (R&D) method. This method was used to develop and refine the learning product. According to Waruwu (2024), the R&D method is an approach that focuses on product development through stages of planning, production, and evaluation of the validity and effectiveness of the resulting product. In this study, the product developed was a Flapbook

learning medium to improve early childhood recognition of the letters “b” and “d.”

The product development design in this research referred to the ADDIE model developed by Branch. ADDIE is an acronym representing five development stages, namely:

1. Analyze

This stage involved analyzing learning needs and identifying problems faced by young children in recognizing the letters “b” and “d.” Through observation and literature review, it was found that children often struggled to differentiate the two letters due to their similar forms. Therefore, learning media that could provide more effective sensory and visual learning experiences was needed.

2. Design

At this stage, the Flapbook design was developed by considering principles of early childhood learning, such as the use of colors, textures, and engaging activities. The design included the preparation of content suited to children’s needs, such as activity sheets for distinguishing letters using tactile elements.

3. Development

This stage involved creating a Flapbook prototype based on the planned design. The prototype was then internally tested by experts in learning media and early childhood education to ensure product quality and validity. Revisions were made based on

suggestions and feedback obtained from the experts.

4. Implementation

The developed Flapbook was implemented in classroom learning activities for early childhood. At this stage, children used the media to learn recognizing the letters “b” and “d.” The implementation process was observed to assess children’s involvement and responses to the media use.

5. Evaluation

Evaluation was conducted to assess the effectiveness of the Flapbook in improving children’s letter recognition skills. The evaluation included pre- and post-measurements of learning outcomes as well as feedback from teachers and parents. The results of the evaluation were used to refine the media before its wider application.

The data analysis in this study was carried out to determine both the feasibility and the effectiveness of the Flapbook media in improving children’s ability to recognize the consonant letters “b” and “d.” Feasibility analysis was conducted through validation by material and media experts using a Likert scale questionnaire. The results of the expert assessments were then calculated by comparing the obtained score with the maximum possible score

and converting it into a percentage. The percentage values were subsequently categorized into levels of feasibility, namely very feasible, feasible, less feasible, and not feasible. This analysis showed that the Flapbook media met the criteria of being very feasible to be applied in early childhood learning.

Effectiveness analysis was conducted using a quasi-experimental design with a pretest–posttest control group. Thirty children aged 5–6 years were divided into two groups, namely the experimental group, which used the Flapbook media, and the control group, which used conventional methods. Pretest and posttest data on the ability to recognize the letters “b” and “d” were collected from both groups. Considering that the number of samples was relatively small and the data did not meet the assumption of normality, the Mann-Whitney U Test was employed as a non-parametric statistical test. Data were processed using SPSS software with a significance level of 0.05.





Results and Discussions


This research produced a learning medium in the form of a

Flapbook designed to help children aged 5–6 years recognize the consonant letters “b” and “d.” The development process was carried out using the ADDIE model (Analyze, Design, Develop, Implement, Evaluate), which includes the stages of needs analysis, design, product development, field implementation, and evaluation. At the analysis stage, the results of observations and interviews with teachers showed that about 67% of children still had difficulty distinguishing the letters “b” and “d,” due to their similar visual forms and the children’s low visual perception ability.

The design stage resulted in a Flapbook with A4 size, using laminated art paper, and organized into three levels of difficulty. Its contents included activities such as matching identical letters, completing missing initial letters in words, finding letters in the context of pictures, and grouping objects according to their initial letters. The Flapbook was designed to be visually attractive, equipped with colorful illustrations and simple texts tailored to the characteristics of early childhood. This approach aligns with the needs of pre-literacy learning, which emphasizes the importance of visualization, manipulation of real objects, and enjoyable learning experiences. The following are the results of several Flapbook designs:

No.	Display	Description
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1.		The picture shows the first and last pages (front and back covers) of the flapbook media.
2.		The picture shows the preface and the table of contents of the book.
3.		The activity involves opening the flap and naming the visible pictures (drum, two, balloon, pillow, ball, tie, dice, and shirt).
4.		The activity involves opening the flap and naming the visible pictures (leaf, book, doll, wallet, dinosaur, bear, duck, crocodile).

5.		The activity involves opening the flap and naming the visible pictures (bird, rhinoceros, pig, sheep, duku, durian, and pomegranate).

1. Feasibility of the Flapbook Product

The feasibility of the product was tested through validation by material experts and media experts. The material expert assessed that the content of the Flapbook was in accordance with the learning objectives of language in the *Kurikulum Merdeka* for the early childhood education level, especially in the aspect of consonant letter recognition. The media expert assessed that the visual design, color selection, layout neatness, and interactivity of the media had met the feasibility criteria. The assessments from both validators showed an average score in the “very feasible” category. This indicates that the Flapbook developed can be directly used in kindergarten learning without requiring substantial revisions.

This assessment reinforces the statement of Delfiana & Setyadi

(2025), that effective learning media is media that can convey messages accurately to the target learners, taking into account the developmental needs of early childhood. The Flapbook developed has been proven to facilitate children in recognizing letters through enjoyable visualization and exploration.

These findings are supported by Smith's theory (2017), which states that effective learning media for early childhood are those that can attract attention, deliver information concretely, and provide opportunities for active exploration. The use of Flapbooks that can be opened to reveal hidden information provides a more vivid learning experience and allows children to be directly involved with the material, both cognitively and motorically.

2. Effectiveness of the Flapbook Product

The effectiveness test was carried out through a quasi-experimental design with a pretest-posttest control group. The research subjects consisted of 30 children aged 5–6 years at TK Kemala Bhayangkari 1 Surabaya, divided into control and experimental groups. The experimental group used the Flapbook media, while the control group used conventional learning methods.

To test the effectiveness of the media, the researcher applied a quasi-experimental design with experimental and control groups. Thirty children were divided into two groups: the experimental group, which used Flapbook media, and the control group, which used

conventional learning methods such as copying letters and oral practice. The pretest results showed that both groups had relatively equal initial abilities. After three treatment sessions, a posttest was conducted to determine the improvement in the ability to recognize the letters “b” and “d.”

The results of data analysis using the Mann-Whitney U Test showed a significance value of Asymp. Sig. (2-tailed) $< 0.001 < 0.05$, which means that there was a very significant difference between the control and experimental groups. Thus, the use of Flapbook media is statistically proven to be effective in improving the ability to recognize the consonant letters “b” and “d” in early childhood. This is consistent with the opinion of Maemunah and Mas’ud (2022), who stated that visual-interactive media can improve children’s understanding of letters by up to 40% more effectively compared to conventional methods. It also supports that Flapbook media is effective in enhancing children’s ability to recognize the letters “b” and “d.” This effectiveness emerges because children are actively engaged in enjoyable and non-monotonous learning activities (Mufidah & Maulidiyah, 2022).

The improvement in children’s abilities was not only evident in the posttest results but also in their participation during learning. Children appeared more enthusiastic, actively opened the flaps, and showed curiosity about the contents of the media. This is in line with Amanda et al. (2024), who found that the use of interactive media such as

Flapbooks can improve children's attention, concentration, and memory of letter material.

In addition to being demonstrated through quantitative data, the effectiveness of the media was also evident in the responses and engagement of the children during the learning process. Children using Flapbooks were more active, enthusiastic, and less easily bored. They were able to follow the teacher's instructions well, were eager to open each flap, and repeatedly wanted to try again. Activities such as matching letters and arranging short words provided enjoyable as well as meaningful learning experiences. This reinforces the findings of Handayani & Anisa (2023), that interactive media can increase children's motivation and engagement in early literacy learning.

Children's interaction with the media also helped improve their fine motor skills, such as flipping flaps, attaching letters, and writing on worksheets. According to Yafie (2024), motor stimulation conducted alongside cognitive processes will strengthen memory and children's thinking abilities. Therefore, the Flapbook not only helps children recognize letters but also enhances other developmental aspects such as hand-eye coordination and concentration.

The Flapbook media successfully addressed the challenges in learning consonant letter recognition "b" and "d," which have long been considered difficult for early childhood. The visual and interactive characteristics of the Flapbook proved to support children's dominant

visual and kinesthetic learning styles. This research supports Piaget's theory that early childhood is in the pre-operational stage, in which they learn through concrete and manipulative experiences.

In addition, the use of Flapbook media is also relevant to the constructivist learning approach, which emphasizes active child engagement in the learning process. Children are not only receivers of information but also subjects who explore, predict, and discover answers through media designed in an enjoyable way. The success of Flapbook media in improving letter recognition also proves that appropriate learning media can significantly strengthen early childhood literacy (Shinsky, 2021).

Furthermore, these findings support the latest educational policy in the *Kurikulum Merdeka*, which emphasizes child-centered learning. In this approach, children are given space to learn according to their styles and interests, and are facilitated with engaging and contextual media. The Flapbook, as an interactive print medium, has high flexibility and can be modified for various other teaching materials such as numbers, shapes, or colors.

These results provide a tangible contribution to the development of early childhood learning media. The use of Flapbooks not only makes it easier for teachers to deliver letter material but also increases children's learning interest and provides enjoyable and meaningful learning experiences. Therefore, it is recommended that this medium be more

widely adopted in kindergarten and other early childhood education institutions.

Conclusion

The research successfully developed a Flapbook learning media aimed at improving the ability of children aged 5–6 years to recognize the consonant letters “b” and “d.” The development process using the ADDIE model resulted in a feasible and effective product, as confirmed by expert validation. Both material and media experts rated the Flapbook as “very feasible,” indicating that the content, design, and interactivity met the developmental needs of early childhood. The effectiveness test using a quasi-experimental design with pretest–posttest control groups showed a significant improvement in the experimental group compared to the control group, with Asymp. Sig. $< 0.001 < 0.05$. This finding proves that Flapbook media is statistically effective in enhancing children’s recognition of the letters “b” and “d.” Beyond statistical data, children also demonstrated greater enthusiasm, active participation, and improved fine motor coordination during learning activities.

These results affirm that the Flapbook provides meaningful, enjoyable, and interactive learning experiences aligned with early literacy development, Piaget’s theory of concrete operational learning, and constructivist approaches. Thus, Flapbook media can serve as an innovative alternative for teachers in supporting early literacy and can

be further adapted for other basic concepts such as numbers, shapes, and colors.

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