



Development of ADDIE model-based busy book media to improve children's fine motor skills

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Info article

Article history:

Accepted June 16, 2026

Revised July 01, 2026

Accepted July 10, 2026

Available online August 17, 2026

Keywords: ADDIE, Busy book, Fine motor skills, Research and development.

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Institute for Research and Community Service (LPPM)
PGRI Mahadewa University Indonesia

Abstract. Early childhood fine motor skills need early stimulation because they form the foundation for everyday academic and independent skills such as writing, buttoning, and tying ropes. Observations at North Palu State Kindergarten found that some children aged 5-6 years still have difficulty with activities that require hand-eye coordination, such as buttoning, opening zippers, and tying ropes. This condition shows the need for interesting learning media that aligns with children's characteristics to optimally stimulate fine motor development. This research aims to develop a suitable and effective Busy Book media in stimulating children's fine motor skills. The method used is Research and Development (R&D) with the ADDIE development model consisting of Analysis, Design, Development, Implementation, and Evaluation stages. The study subjects were 15 children in the B1 group of North Palu State Kindergarten, selected using purposive sampling based on the criteria of children aged 5-6 years and actively registered in class B1. Data collection used

observation, interviews, documentation, expert validation questionnaires, and children's fine motor tests before and after media use. The results showed that the Busy Book media fell into the very feasible category based on validation by material and media experts, with an average percentage of 98.68%. The effectiveness test results showed that children's fine motor skills increased from an average score of 56.47 in the pretest to 87.05 in the posttest after using the Busy Book media. Thus, Busy Book media can serve as an effective alternative learning medium to support fine motor development in early childhood. This media can also serve as an alternative for PAUD teachers to provide interesting, interactive, and appropriate learning in accordance with the characteristics of child development.

Introduction

Early childhood development is a very important stage because it lays the foundation for children's physical, cognitive, language, and social-emotional development, as well as their independence in later stages. During this period, every aspect of development needs optimal stimulation through learning experiences that align with children's characteristics and needs. Early Childhood Education (PAUD) has a strategic role in providing a learning environment that supports this development through active, fun, and meaningful play activities. Early childhood learners learn through exploration, interaction, and direct experience, so the learning process needs media that provides concrete experiences. Using learning media aligned with children's developmental characteristics has been shown to increase children's involvement in learning while supporting

physical motor development as a foundation for children's readiness for learning activities and daily life (Zosh, 2022).

One aspect of development that requires special attention in early childhood education is fine motor development. Fine motor skills involve coordinating small muscles in the hands and fingers with eye-hand coordination to perform activities such as drawing, cutting, writing, buttoning clothes, unzipping zippers, and tying shoelaces (Adolph & Franchak, 2021). These abilities not only support children's academic readiness but also form the basis for independence in daily activities. Therefore, fine motor skills need to be stimulated on an ongoing basis through play activities that are engaging, repetitive, and appropriate to the child's developmental stage.

Optimal fine motor development helps children improve eye-hand coordination, accuracy, concentration, and the ability to complete simple activities independently. On the other hand, a lack of fine motor stimulation can make it difficult for children to perform activities that require coordinated movement and precise finger use. Therefore, PAUD teachers need to provide learning activities that give children the opportunity to carry out manipulative activities using concrete objects. Various studies show that manipulative learning media can increase children's involvement in learning and provide a more meaningful learning experience, so fine motor development can occur optimally (Putri et al., 2021).

Although various studies have reported the importance of fine motor stimulation, its implementation in the field still faces several obstacles. Based on initial observations in Group B1 of the North Palu Pembina State Kindergarten, some children aged 5–6 years still have difficulty with activities that require eye-hand coordination, such as cutting along patterns, coloring neatly, buttoning clothes, unzipping zippers, and tying shoelaces. In addition, teachers still rely heavily on worksheets, limiting children's opportunities to learn through direct manipulative activities. This shows that learning media need to be more interactive, engaging, and aligned with children's developmental characteristics so fine motor stimulation can be provided optimally (Masyukroh & Wahyuni, 2023; Widana et al., 2023).

One medium that has the potential to overcome these problems is the Busy Book. Busy Book is a learning medium in the form of an interactive activity book that contains various manipulative activities, such as installing buttons, opening and closing zippers, tying shoelaces, installing adhesive, matching shapes, and other activities that involve hand-eye coordination. These activities resemble daily life tasks so that, in addition to training fine motor skills, Busy Book can also develop children's independence. Because it is interesting, safe, and reusable, Busy Book is an alternative learning medium suitable for early childhood (Rahmasari & Ismet, 2022; Dini, 2022; Markus et al., 2025).

Previous studies have shown that Busy Books contribute positively to early childhood development. Erik & Carniyati (2022) reported that the use of Busy Books was able to improve children's eye and hand coordination through manipulative activities that were carried out in stages. Research by Yanti & Ambara, (2024) also shows that Busy Books have a positive effect on improving fine motor skills and children's involvement in the learning process. In addition, Nur et al. (2025) explained that Busy Book media can create a concrete learning experience so that children are more active, motivated, and can more easily understand learning activities. The results of the study show that Busy Book is a potential medium to support fine motor development in early childhood (Pangesti et al., 2019; Risa Mufliharsi, 2017).

However, previous studies still have some limitations. Most research focuses on using Busy Books as a learning medium without following a systematic media development process. Previous research

has focused more on the results of media use, while the development process that includes needs analysis, product design, expert validation, revision, implementation, and evaluation is still rarely carried out. Thus, development research is still needed to produce Busy Book media that truly aligns with students' needs and learning characteristics in PAUD (Risa Mufliharsi, 2017; Aini et al., 2024).

Based on these gaps, this study developed Busy Book media using the ADDIE model, which consists of Analysis, Design, Development, Implementation, and Evaluation stages. In contrast to previous research, media development in this study began with a needs analysis conducted directly in the learning environment at North Palu Pembina State Kindergarten. Furthermore, the media is developed through design, expert validation, revision, implementation, and evaluation so the resulting product is feasible and effective.

The novelty of this research lies in the development of Busy Book media, which is designed based on the real needs of children aged 5-6 years by combining fine motor activities and independence exercises in daily life, such as buttoning clothes, unzipping zippers, tying shoelaces, using shoe adhesive, and getting to know school supplies. In addition, this research not only produces learning media products but also evaluates the media's feasibility and effectiveness through expert validation and implementation using the ADDIE development model.

Based on this description, this study aims to develop Busy Book media using the ADDIE model as a feasible and effective learning medium in stimulating the fine motor skills of children aged 5-6 years at the North Palu Pembina State Kindergarten. In particular, this study aims to: (1) develop Busy Book media based on the results of student needs analysis, (2) determine the feasibility level of media through expert validation, and (3) analyze the effectiveness of the use of Busy Book media in improving children's fine motor skills.

Method

This study uses the Research and Development (R&D) with the ADDIE development model (Analysis, Design, Development, Implementation, and Evaluation). The R&D method was chosen because it aims to produce feasible, practical, and effective learning products through a systematic development process before implementation. The products developed in this study are Busy Book media designed to stimulate the fine motor skills of children aged 5–6 years. Media development is carried out based on the results of the analysis of student needs so that the resulting products are not only attractive in terms of appearance, but also in accordance with the developmental characteristics of children aged 5-6 years. This approach aligns with ADDIE's development model, which uses needs analysis as the basis for producing effective learning products (Branch, 2020).

The ADDIE model was chosen because its systematic, flexible stages allow ongoing evaluation at each stage. The Analysis stage identifies learning needs, student characteristics, and teachers' challenges. The Design stage compiles the media design based on the analysis results. The Development stage includes product creation, expert validation, and product revision. The Implementation stage involves a trial of the media with students, while the Evaluation stage assesses the media's feasibility and effectiveness based on expert validation results and classroom implementation (Branch, 2020).

Participants and Sampling Techniques

The research was carried out at the North Palu Pembina State Kindergarten in the even semester of the 2025/2026 Academic Year. The research subjects consisted of 15 children in Group B1 who were 5–6 years old. All participants were included as research samples using Saturated Sampling

(Total Sampling) because the population is relatively small; all members of the population were included. This technique allows researchers to obtain a comprehensive picture of students' fine motor development in the studied group (Safitri et al., 2024).

In addition to involving students, this research also involved two validators: one Early Childhood Education material expert with expertise in early childhood development and learning material preparation, and one learning media expert with experience in developing activity-based learning media. The researchers selected both validators based on academic competencies and professional experience relevant to the research objectives.

Research Setup and Time

The research was carried out through several stages according to the ADDIE model. The research stages range from needs analysis, media design preparation, product manufacturing, expert validation, media use trials, to product evaluation. The research is implemented in stages so each development process can be reviewed and improved based on evaluation results. Systematic development research can improve the quality of the learning products produced.

The research location was chosen based on initial observations showing the need for learning media that can train children's fine motor skills. North Palu State Kindergarten Pembina students fit the goals of developing Busy Books because learning activities still require a variety of concrete media that children can use directly (Safitri et al., 2024).

Research Procedure

The first stage in this study is analysis. At this stage, the researcher identified the need through observation of learning activities and interviews with teachers in group B1. The analysis aimed to determine students' characteristics, fine motor development problems, the use of learning media, and the conditions of the learning environment. The results showed that some children still had difficulty with activities that involved eye-hand coordination, such as buttoning, unzipping, and tying shoelaces. In addition, teachers' learning media are still limited, so more interactive media are needed to meet children's needs (Putri et al., 2021).

The analysis stage also considers students' characteristics, namely children aged 5-6 years who learn through concrete activities and play. Therefore, the Busy Book media is designed with activities that children can touch, move, install, and play with. The researcher also analyzes the curriculum by aligning the Busy Book activities with early childhood development achievements, especially physical, motor, and independence aspects (Rahmasari & Ismet, 2022).

The second stage is design. At this stage, the researcher develops an initial product design based on the results of a needs analysis. The Busy Book media is designed with attention to material safety, media size, colors, images, and activities appropriate to early childhood abilities. This product is designed as an activity book that includes activities such as fastening shoes with Velcro, tying laces, buttoning shirts, unzipping zippers, fastening bags, and identifying school supplies. The design was chosen because the activity is directly related to the child's daily life, so learning becomes more meaningful (Creswell & Creswell, 2021).

The third stage is development. At this stage, the media design is realized into a real product. The development process includes several steps: material selection, creation of activity pages, preparation of Busy Book components, and product safety checks. After completing the product, material experts and media experts validate it. Validators provide assessments and suggestions for improvements related to the product's content, appearance, and suitability for the child's

development. The revision stage is carried out based on validator input so that the developed product is more suitable for use (Rahmasari & Ismet, 2022).

The fourth stage is implementation. Busy Book products that have undergone validation and revision are then tested with group B1 children at North Palu State Kindergarten Pembina. Implementation is carried out through learning activities using the Busy Book media. Children are given the opportunity to carry out activities available in the media independently, with help from teachers and researchers. At this stage, observations focus on the child's response, involvement, and ability to perform fine motor activities (Ilmiah et al., 2025; Wijaya et al., 2026).

The fifth stage is evaluation. The researchers conducted an evaluation to determine the product's success based on expert validation results, observations of media use, and changes in children's fine motor skills before and after using Buku Sibuk. The evaluation aims to identify the product's strengths and weaknesses so the media can be refined as a learning medium for early childhood education.

Data Collection Techniques and Research Instruments

The researchers collected data through observation, interviews, documentation, expert validation questionnaires, and fine motor ability tests. Observation measured children's fine motor skills before (pretest) and after (posttest) using the Busy Book. The study conducted interviews with classroom teachers to gather information about learning conditions and media needs. Activity photos and field notes served as supporting documentation (Creswell & Creswell, 2021).

The fine motor observation instrument contains four indicators, namely (1) eye and hand coordination, (2) finger skills, (3) movement accuracy, and (4) independence in completing activities. Meanwhile, the expert validation instrument includes four assessment aspects: content feasibility, media appearance, material safety, and the activity's suitability to the child's developmental characteristics. All aspects were assessed using a 4-point Likert scale, namely 1 = not feasible, 2 = less feasible, 3 = feasible, and 4 = very feasible.

The eligibility percentage is calculated using the formula: $\text{Percentage} = (\text{Score obtained} / \text{Maximum score}) \times 100\%$; with the following assessment criteria:

Table 1. The assessment criteria

Interval	Category
81–100%	Very Worthy
61–80%	Eligible
41–60%	Fairly Decent
≤40%	Not Eligible

The research data were analyzed descriptively, qualitatively, and quantitatively. Qualitative data from observations, interviews, documentation, and validator comments were analyzed through data reduction, data presentation, and conclusion drawing.

Quantitative data in the form of expert validation scores were analyzed using percentages to determine the level of media eligibility. Pretest and posttest data were analyzed descriptively by calculating the mean before and after using Busy Book media. Furthermore, the improvement in fine motor skills was determined by the difference between the pretest and posttest mean scores to assess the effectiveness of using media in improving children's fine motor skills.

This research was carried out after obtaining permission from the Head of the North Palu Pembina State Kindergarten. Classroom teachers approved the research implementation and accompanied all learning activities during the media implementation. All students' identities are kept confidential, and all data obtained is used only for research purposes to avoid negatively impacting students.

The product developed is in the form of Busy Book media, which is an interactive activity book for children aged 5-6 years that consists of several pages of manipulative activities, such as installing shoe adhesive, tying shoelaces, opening and closing zippers, buttoning clothes, using bags, and getting to know school supplies. This media is designed using materials that are safe, reusable, and support individual and small-group learning to provide a concrete and enjoyable learning experience for children (Rita et al., 2026).

Results and Discussion

This research developed the Busy Book media to stimulate the fine motor skills of children aged 5–6 years using the ADDIE development model, which includes five stages, namely Analysis, Design, Development, Implementation, and Evaluation. The ADDIE model was chosen because it provides a systematic development procedure, starting from identifying needs, designing products, developing, implementing, and evaluating, so that the products produced are in accordance with the characteristics of students and learning objectives (Branch, 2020). This approach also allows the development process to be carried out in stages through validation and revision at each phase, so the quality of the media can be improved before it is implemented with students.

The results show that the Busy Book media was successfully developed through all stages of ADDIE. The development process begins with a needs analysis to identify learning problems and student characteristics, then continues with product design, validation by material and media experts, implementation in the B1 group of North Palu Pembina State Kindergarten, and evaluation of the media's feasibility and effectiveness. In this section, the results not only describe each development stage but also interpret the findings, compare them with previous research, and discuss the theoretical contributions and practical implications of using Busy Book media to improve fine motor skills in early childhood.

Stages of Analysis

The analysis stage is the initial stage in developing Busy Book media using the ADDIE model. At this stage, the researcher observed the learning process, interviewed B1 group teachers, and analyzed learning documents to identify students' needs and learning conditions at North Palu Pembina State Kindergarten. The analysis covered students' characteristics, children's fine motor development, the learning media used, and the suitability of learning for achieving early childhood development.

Observation results show that some children still have difficulty with activities that require hand-eye coordination, such as buttoning clothes, opening and closing zippers, using shoe adhesive, and tying shoelaces. In addition, teachers still rely heavily on worksheets, coloring activities, and conventional media, so children's opportunities to engage in direct manipulative activities remain limited. This condition shows that fine motor stimulation has not been carried out optimally because children have not gained learning experience involving repeated use of small hand muscles through meaningful activities.

Analysis of the students' characteristics shows that children in group B1, aged 5–6 years, are at a developmental stage that requires learning *by doing*. At this stage, children are more likely to

understand concepts through concrete activities than through verbal explanations. Therefore, the learning media must provide opportunities for children to hold, install, open, close, and manipulate objects independently to support the development of eye-hand coordination and fine motor skills.

The curriculum analysis also showed that learning activities relate to early childhood development achievements, especially physical-motor development and independence. However, implementing learning still requires media that can integrate these development indicators into contextual activities. Based on the needs analysis results, the Busy Book media was chosen because it can accommodate various activities of daily life, such as buttoning clothes, unzipping zippers, tying shoelaces, using shoe adhesive, and getting to know school supplies relevant to children's lives.

The analysis findings show a gap between children's fine motor development needs and the learning media available in the classroom. This condition forms the basis for developing Busy Book media as an alternative learning medium that is not only visually appealing but also provides an active, concrete, and child-centered learning experience. These findings align with [Rahmasari & Ismet \(2022\)](#), who state that manipulative media can increase children's involvement in learning by providing opportunities for hands-on experience. However, this research has advantages because media development begins with a systematic needs analysis, so the products produced are adjusted to real conditions in the field.

Design Stage

The design stage is carried out based on the results of the needs analysis obtained in the previous stage. At this stage, the researcher prepared the initial design of the Busy Book media by considering the developmental characteristics of children aged 5-6 years, learning objectives, indicators of fine motor development, material safety, and ease of use for teachers and students. Media design is carried out systematically so that each activity contained in the Busy Book has a clear function in stimulating children's fine motor skills. The Busy Book media is designed as an interactive activity book with several pages of manipulative activities, including applying shoe adhesive, tying shoelaces, buttoning clothes, opening and closing zippers, using school bags, and getting to know school supplies. Each activity is based on tasks children often do in daily life, making learning more contextual and meaningful. In addition to practicing hand-eye coordination, the activity is also designed to improve children's accuracy, concentration, and independence in completing tasks.

In addition to the activity content, media design also considers safety and comfort of use. The materials used are chosen with early childhood safety in mind, have no sharp parts, are easy to clean, and are durable so they can be reused in learning activities. The selection of colors, shapes, font sizes, and illustrations is adjusted to early childhood characteristics to attract attention and increase learning motivation.

Table 2. Busy Book Media Design

Media Pages	Learning Objectives
Cover Busy Book	Introducing media to children
Shoe Adhesive	Practice eye and hand coordination
Tying the Shoelaces	Practice finger coordination and precision
Opening and Closing the Zipper	Train finger muscle strength and movement coordination
Buttoning Up	Practice fine motor coordination and independence
Using the Bag	Practice manipulative skills
Introducing School Supplies	Develop motor coordination and the ability to recognize objects
Closing Halaman	End a learning activity

Description. Table 2 shows that each page of the Busy Book is designed to stimulate different fine motor indicators through manipulative activities related to the child's daily life.

The results of the design stage show that the Busy Book media is designed not only as a play medium but also as a learning medium oriented toward achieving early childhood development indicators. Each activity has a specific learning goal, so the media can provide fine motor stimulation gradually and continuously. These findings support research by [Safitri et al. \(2024\)](#); [Fitriyah et al. \(2021\)](#), who state that media based on daily life activities are more effective in improving fine motor skills because children gain concrete and meaningful learning experiences.

In contrast to some previous studies that emphasized using the Busy Book as a play medium, this study develops each activity based on an analysis of students' needs and early childhood development achievements. Thus, the resulting Busy Book design is not only visually attractive but also has a strong pedagogical basis, supporting a more effective learning process.

Development Stage

The development stage is the process of turning the initial design into a Busy Book product ready for use in learning. At this stage, the researcher makes media according to the prepared design, from selecting materials and preparing the activity page to installing each component and conducting product safety checks. The materials include flannel, adhesive, buttons, zippers, shoelaces, and other supporting accessories selected for safety, durability, and ease of use for children aged 5–6 years old. Each page is designed to build hand-eye coordination through everyday manipulative activities, such as applying shoe adhesive, tying shoelaces, buttoning clothes, opening and closing zippers, using bags, and getting to know school supplies.

After the initial product is developed, a validation process assesses the media's feasibility before implementation with students. Two validators conducted the validation: one expert in early childhood education materials and one learning media expert with experience developing early childhood learning media. Each validator assessed the material using a four-level Likert scale instrument with scores of 1–4. Material experts assessed the material's suitability to the child's developmental achievements, the accuracy of learning objectives, the suitability of activities for fine motor development, and the media's benefits for the learning process. Meanwhile, media experts assessed design aspects, visual appearance, material safety, ease of use, media appeal, and presentation quality.

Table 3. Expert Validation Results

Validator	Number of Indicators	Scores Obtained	Score Maximum	%	Category
Material Expert	29	114	116	98.28%	Very Worthy
Media Member	27	107	108	99.07%	Highly Worthy
Average				98.68%	Highly Worthy

Remarks: Percentages are calculated using the formula: $\text{Percentage} = (\text{Score obtained} / \text{Maximum score}) \times 100\%$. The validation results showed that the Busy Book media obtained a very decent category from both validators. In the validation by material experts, 27 of the 29 indicators received a score of 4 and 2 received a score of 3, resulting in a feasibility percentage of 98.28%. Several indicators received a score of 3, related to improving instructions for the use and presentation of the material to make it easier for teachers and students to understand. In general, material experts stated that the activities in the Busy Book align with the fine motor development indicators for children aged 5–6 years.

Meanwhile, media experts' validation results showed that, of 27 indicators, 26 received a score of 4 and 1 received a score of 3, with a feasibility percentage of 99.07%. Validator feedback mainly focused on improving the layout of some components and strengthening seams in frequently used parts to make the media safer and more durable for repeated use by children.

Both validators' input forms the basis for revising the product before the implementation stage. The revisions included improving the media instructions, strengthening component installation on several pages, and improving the layout to make activities easier for children to complete. This revision process is an important part of the ADDIE model because it ensures the product meets content, safety, and usability standards before implementation in learning activities.

The very high validation results showed that the Busy Book media was well suited to early childhood learning needs. A high score on the material aspect indicates that the activities support fine motor development, while a high score on the media aspect indicates that the product design meets the principles of safety, attractiveness, and ease of use. These findings reinforce Branch's (2020) view that validation is an important stage in development research to ensure product quality before implementation.

The results of this study also align with the research by Rahmasari & Ismet (2022), who reported that Busy Book media has a high level of feasibility because it integrates manipulative activities with children's learning experiences. However, this research has advantages because the media development focuses not only on the final product but also on the process of needs analysis, expert validation, revision, and refinement, systematically following the stages of the ADDIE model. Thus, the resulting media is not only visually appealing but also has a strong pedagogical basis, making it suitable for use as a learning medium to stimulate early childhood fine motor skills.

Implementation Stage

The implementation stage is carried out after the Busy Book media is declared feasible based on the results of expert validation and has been revised according to the validator's input. The product trial was conducted with 15 children in the B1 group of North Palu Pembina State Kindergarten aged 5–6 years. Teachers and researchers carried out learning activities using Busy Book media in stages. Before using the media, all children took a pretest to find out their initial fine motor skills. After several learning activities using the Busy Book, researchers administered a posttest using the same observation instrument to measure changes in children's abilities objectively.

Learning activities focus on various fine motor skills related to daily life, such as applying shoe adhesive, tying shoelaces, buttoning clothes, opening and closing zippers, using bags, and getting to know school supplies. All activities are carried out directly so children can practice eye-hand coordination, finger strength, accuracy, and independence through concrete learning experiences.

Table 4. Comparison of Children's Fine Motor Skills Before and After Using Busy Book Media

Measurement	Average Score
Pretetst	56.47
Posttest	87.05
Gain Score	30.58

The results showed an increase in fine motor skills after using Busy Book media. The child's average score increased from 56.47 during the pretest to 87.05 during the posttest, with a gain score of 30.58 points. This increase shows that manipulative activities in media can effectively stimulate eye-hand coordination, finger flexibility, movement accuracy, and children's ability to complete tasks independently.

However, observations show that each child's development does not progress uniformly. Of the 15 children who participated, 12 completed most activities independently, while 3 still needed assistance, especially with buttoning clothes and tying shoelaces. Both activities require bilateral coordination, precision, and finger movement control, which are more complex than other activities, so they require more intensive training. Teachers provide assistance by giving examples, gradual directions (scaffolding), and opportunities to practice repeatedly until the child can complete activities independently.

These findings show that the Busy Book is effective in improving fine motor skills overall, but each child's development is still influenced by developmental readiness, previous experience, and the intensity of training. Therefore, Busy Book media not only functions as a learning tool but also as a training medium that allows teachers to provide stimulation according to each child's needs.

The results of this study align with research by [Rahmasari & Ismet \(2022\)](#), who reported that manipulative activities in Busy Book improved eye and hand coordination through repetitive exercises. Similarly, research by [Safitri et al. \(2024\)](#) and [Widana & Ratnaya \(2021\)](#) shows that activities such as buttoning, unzipping, and tying shoelaces improve fine motor skills and early childhood independence. However, the study also found that, despite improved overall ability, some children still need assistance with higher-difficulty activities. This shows that Busy Book use should be combined with teacher guidance and continuous practice so all children can achieve optimal fine motor development.

Evaluation Stage

The evaluation stage assesses the quality of the Busy Book media as a whole, from needs analysis, design, development, and implementation to the results of using the media in learning. The evaluation was based on expert validation results, observations during implementation, and changes in children's fine motor skills after using the media. This stage aims to ensure that the developed product is not only design-feasible but also effective in supporting the achievement of learning objectives.

The evaluation results showed that the Busy Book media met the criteria for a learning medium suitable for children aged 5–6 years. The high expert validation results show that the media aligns with fine motor development indicators, is safe to use, visually appealing, and easy for teachers and children to operate. In addition, the increase in fine motor skills scores after implementation indicates that the manipulative activities in the Busy Book effectively stimulate eye-hand coordination, movement accuracy, and children's independence in carrying out daily activities.

However, the results also show that the media's effectiveness is not the same for all students. As many as three children still need assistance when doing activities such as buttoning clothes and tying shoelaces. This shows that each child's fine motor development progresses gradually and is influenced by developmental readiness, prior learning experience, and the intensity of the exercises provided. Therefore, the Busy Book should be used with gradual teacher guidance (scaffolding) so each child gets learning opportunities that suit their needs.

Discussion: Novelty of Research Results

The findings show that the Busy Book media developed through the ADDIE model is a viable and effective learning medium for stimulating fine motor skills in early childhood. The improvement in children's abilities after using the media shows that manipulative activities provide a more meaningful learning experience than learning that relies only on worksheets or verbal explanations. Activities such as buttoning clothes, opening and closing zippers, attaching adhesives, and tying

shoelaces involve hand-eye coordination, small-muscle control, and concentration, gradually improving children's fine motor skills.

The results of this study align with research by [Rahmasari & Ismet \(2022\)](#), which states that Busy Books are an effective learning medium for improving fine motor skills through manipulative activities that allow children to learn actively. These findings also support research by [Yuliani et al. \(2025\)](#), who report that buttoning, unzipping, and tying shoelaces can improve hand-to-finger coordination because children repeat these tasks in fun learning situations. In addition, research by [Yuliani et al. \(2025\)](#) shows that using a Busy Book not only improves fine motor skills but also helps develop children's independence and confidence in completing simple tasks.

Although the results align with previous research, this study makes a different contribution. Most previous research focused on the influence of using Busy Books on learning outcomes, while this study systematically developed the media through all stages of the ADDIE model, from needs analysis and product design to expert validation, revision, implementation, and evaluation. Thus, the products produced are not only proven effective, but also developed based on the real needs of students and learning conditions at the North Palu Pembina State Kindergarten. This approach reinforces the principle that learning media development should be based on needs analysis so the resulting product is more relevant and appropriate to the user's context.

From a theoretical perspective, this research strengthens constructivist learning theory and the theory of learning through play, which holds that children build knowledge and skills through direct interaction with the learning environment ([Purnadewi & Widana, 2023](#)). The concrete experiences provided through manipulative activities in the Busy Book allow children to develop fine motor coordination gradually through exploration, repetitive exercises, and simple problem-solving. The results of this study also support the idea that interactive learning media can increase children's active involvement in the learning process, so fine motor development occurs more optimally.

Practically, Busy Book media can be an alternative for PAUD teachers in providing more varied, interactive, and child-centered learning. This media is easy to use in individual and small-group learning activities and can be adjusted to the learning theme used in the classroom. In addition to training fine motor skills, the activities in the Busy Book also help foster children's independence in daily life activities such as putting on clothes, using bags, and putting on shoes. Therefore, this medium has the potential to support activity-based learning in early childhood education ([Panduwinata et al., 2025](#)).

This research still has some limitations. First, the number of research participants is relatively limited, involving only 15 children from one group in one PAUD institution, so the results cannot be generalized widely. Second, the media implementation was carried out over a relatively short period, so it cannot describe the long-term impact of using Busy Book on fine motor development. Third, this study focuses only on fine motor aspects, so it did not examine the potential of Busy Book in developing other developmental aspects, such as cognitive, language, social-emotional, and children's creativity. Therefore, further research is suggested to involve more participants, longer implementation periods, and a variety of Busy Book activities to measure their influence on various aspects of early childhood development.

Conclusion

This research successfully developed Busy Book media using the ADDIE model as a feasible and effective learning medium to stimulate the fine motor skills of children aged 5–6 years. The media was developed in accordance with children's developmental characteristics and provides a concrete

learning experience through various manipulative activities that support eye-hand coordination, finger skills, and independence in carrying out daily activities. The findings contribute to the development of activity-based learning media in early childhood education and provide practical alternatives for teachers to create more interactive, meaningful, and child-centered learning. Further research is suggested to involve more participants, a longer implementation period, and a wider range of activities in the Busy Book so its benefits across various aspects of child development can be studied more comprehensively.

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