

---

## Developing Local Culture-Based Puzzle Books to Increase Reading Interest in Children Aged 5-6 Years

Khusnul Khotimah <sup>1\*</sup>, Ajat <sup>2</sup>, Nita Priyanti <sup>3</sup>

---

### Author Correspondence

Childhood Education Study  
Program, Panca Sakti  
University, Bekasi, Indonesia

Email:

[khusnulhotimah1983](mailto:khusnulhotimah1983@gmail.com)

[@gmail.com ;](mailto:khusnulhotimah1983@gmail.com)

[adjatwiratma@gmail.com](mailto:adjatwiratma@gmail.com);

[nita.priyanti78@gmail.com](mailto:nita.priyanti78@gmail.com)

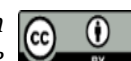
### Keywords :

early childhood  
education; literacy  
learning; local culture;  
reading interests;  
educational media.

**Abstract.** The urgency of this research is to increase reading interest among children aged 5–6 through engaging puzzle books based on local culture. This study aimed to develop and evaluate the feasibility of Bigzel (a Local Culture-Based Puzzle Book) as a learning medium to enhance the reading interest of Group B early childhood learners (aged 5–6 years). The study employed the Research and Development (R&D) method using the 4D development model, consisting of the stages of define, design, develop, and limited disseminate. The development of the media was based on the developmental characteristics of young children and the principles of literacy learning that are concrete, visual, interactive, contextual, and rooted in local culture. The feasibility of the media was evaluated by media experts, subject matter experts, local culture experts, and early childhood education practitioners. The validation results indicated that Bigzel was classified as highly feasible, with feasibility scores ranging from 97% to 100%. These results covered the aspects of content suitability, language readability, visual design quality, material safety, and the integration of local cultural values. An empirical trial was conducted in five early childhood education institutions involving 73 Group B children. The findings demonstrated that the use of Bigzel was effective in improving children's reading interest. Based on ten assessment indicators, 36.9% of the children achieved the Very Well Developed (BSB) category, while 63.1% were in the Developed as Expected (BSH) category. No children were classified as Beginning to Develop (MB) or Not Yet Developed (BB). During the learning activities, the children showed active participation, greater attention, and positive responses while reading and assembling the puzzle. Based on these findings, it can be concluded that Bigzel (a Local Culture-Based Puzzle Book) is a feasible and effective learning medium for enhancing young children's reading interest. It also represents an innovative literacy learning resource for early childhood education through the integration of play-based activities and local cultural values.

---

This work is licensed under a Creative Commons Attribution  
4.0 International License



## Introduction

Indonesia is currently at a crucial stage in preparing the Golden Generation of 2045, making improving the quality of human resources from an early age a top priority for

national development. Early Childhood Education (PAUD) plays a strategic role because, between the ages of 0 and 6, children experience rapid development in language, cognitive, social-emotional, moral, and learning interests. This period is known as the golden age, which lays the foundation for the development of thinking and communication skills, as well as the formation of character and lifelong learning habits. Therefore, optimal literacy stimulation from an early age needs to be provided to provide children with a strong foundation for entering the next level of education (Bleses et al., 2021; Grover et al., 2023).

Early childhood literacy is not only related to the ability to recognize letters or read words, but also includes children's interest, attention, and involvement in reading activities. Reading interest is an important component of early literacy because children who are interested in reading will interact more often with books, gain richer language experiences, and show better vocabulary development and comprehension than children who are less interested in literacy activities (Bus et al., 1995). Therefore, developing reading interest in children aged 5–6 years needs to be done through activities that are fun, interactive, and appropriate to the characteristics of early childhood development (Lepola et al., 2023).

Literacy issues in Indonesia remain a serious challenge. The 2022 Programme for International Student Assessment (PISA) results show that Indonesian students' reading ability remains below the OECD average. This situation indicates that the ability to comprehend reading, interpret information, and use it reflectively still requires greater attention through strengthening a culture of literacy from an early age (OECD, 2023). Low literacy skills not only impact academic achievement but also affect critical thinking skills, problem-solving skills, and readiness to face the challenges of the 21st century.

Field findings from several kindergartens in the Baru Pasar Rebo sub-district of East Jakarta indicate that children aged 5–6 years old still have low interest in reading. Children tend to be more interested in using gadgets such as smartphones and tablets than reading books or listening to stories read by teachers. During group reading activities, only a small number of children are able to maintain full attention, while the majority are easily distracted by other, more visual and interactive activities. This situation indicates that literacy activities carried out in the classroom are not yet able to provide a learning experience that is sufficiently engaging and competitive compared to digital media, which is increasingly familiar to children's daily lives (Rideout, 2017).

This low interest in reading is also influenced by the limited literacy media available in early childhood education (PAUD). Most books used are small, visually unappealing, contain minimal interactive activities, and rarely highlight local cultural values relevant to children's lives. However, contextual learning theory emphasizes that children will more easily understand and internalize information if the material they learn relates to their familiar social and cultural environment (Cun, 2021). Integrating local culture into learning media not only helps children understand the story but also strengthens their cultural identity and fosters a sense of belonging to their social environment (Gay, 2018). In addition to limited reading materials, literacy activities in many early childhood education institutions (PAUDs) are still dominated by conventional methods such as listening to stories and completing worksheets (Syahrani & Afrianingsih, 2025). Children are often passive recipients of information, lacking opportunities for visual, kinesthetic, and tactile engagement. Research on game-based learning shows that the use of educational games, such as puzzles, can increase children's motivation to learn, focus attention, active engagement, and interest in literacy activities because the

learning process occurs through play activities that are appropriate to the characteristics of early childhood development (Alotaibi, 2024).

Big books have been widely used in early literacy learning because their large text and illustrations allow children to follow the story together and understand the content more easily (Justice & Pullen, 2003). On the other hand, puzzles have been proven effective in increasing children's engagement through activities such as arranging, matching, and manipulating objects, making learning more active and enjoyable. However, previous research has shown that the use of big books and puzzles is generally still carried out separately. Research using big books focuses more on early reading skills or language development, while research using puzzles emphasizes the educational game aspect and learning motivation. There is little research that integrates these two media into a single, integrated, culturally-based learning product to increase reading interest in early childhood.

Based on these conditions, innovative learning media are needed that can combine visual, verbal, and kinesthetic elements in one meaningful literacy activity. One alternative that can be developed is Bigzel (Big Book Puzzle Based on Local Culture), a learning medium that combines a large storybook with educational puzzles related to the story's content. This medium is designed so that children not only listen to the story, but also actively observe the illustrations, assemble the puzzle, discuss characters and events, and learn about local cultural values such as mutual cooperation, cooperation, and social awareness. This integration is expected to create a literacy experience that is more interactive, enjoyable, contextual, and in accordance with the developmental characteristics of children aged 5–6 years.

This study uses a Research and Development (R&D) approach with the 4D model (Define, Design, Develop, Disseminate) to develop, validate, and test the effectiveness of Bigzel media. This approach was chosen because it allows researchers to produce learning products that are theoretically valid, practical for teachers to use, and effective in increasing children's interest in reading (Nuha et al., 2025). Therefore, this research is expected to make a real contribution to the development of innovative literacy media in Early Childhood Education (PAUD) while supporting the implementation of the National Literacy Movement based on local culture.

Based on the background description, this study is directed to answer several main problems related to the low reading interest of children aged 5-6 years and the limitations of interactive literacy media in PAUD. These problems include the factual conditions of children's reading interest in kindergartens in the Baru Pasar Rebo Subdistrict area of East Jakarta, the process of developing Bigzel media (Big Book Puzzle Based on Local Culture), the level of media feasibility based on the assessment of material experts, media experts, local culture experts, and PAUD practitioners, as well as the effectiveness of using Bigzel media in increasing reading interest in children aged 5-6 years. This study uses the concepts of emergent literacy, interactive learning media, and contextual learning based on local culture as a basis for answering the research problems. Reading interest in this study is defined as a child's interest, attention, and desire to be involved in reading or listening to stories as shown through enthusiasm, focused attention, active participation, and the desire to repeat reading activities. Meanwhile, Bigzel is defined as a learning media that integrates big books and educational puzzles based on local culture to support literacy activities in children aged 5-6 years. This study assumes that early childhood learns more effectively through play activities that involve various senses, visual, interactive, and contextual media can

increase children's involvement in literacy activities, and the integration of local culture in learning media can increase children's emotional closeness to the content of the story so as to encourage the growth of reading interest. Based on these assumptions, the hypothesis or working hypothesis of this study is that the use of Bigzel media (Big Book Puzzle Based on Local Culture) is effective in increasing reading interest in children aged 5-6 years in kindergarten in the Baru Pasar Rebo Subdistrict, East Jakarta.

This study aims to describe the factual conditions of reading interest in children aged 5–6 years in kindergarten in the Baru Pasar Rebo sub-district of East Jakarta, develop Bigzel media (Big Book Puzzle Based on Local Culture) that is in accordance with the characteristics of early childhood development, determine the level of media feasibility based on validation by material experts, media experts, local cultural experts, and PAUD practitioners, and test the effectiveness of using Bigzel media in increasing reading interest in children aged 5–6 years. Through these objectives, this study is expected to produce innovative, practical, and effective literacy learning media for use in learning activities in PAUD.

This research is limited to the development and testing of Bigzel (Local Culture-Based Big Book Puzzle) media for children aged 5–6 years (Group B) in several kindergartens in the Baru Pasar Rebo Subdistrict, East Jakarta. Aspects studied include analysis of literacy media needs, product development process, validation of media feasibility by material experts, media experts, local cultural experts, and PAUD practitioners, as well as testing the effectiveness of media use in increasing children's reading interest. The research uses the Research and Development (R&D) method with a 4D model consisting of Define, Design, Develop, and Disseminate stages. Measurement of effectiveness is focused on indicators of children's reading interest, not on children's independent reading ability or academic achievement.

The novelty of this research lies in the development of Bigzel media that integrates big books and educational puzzles into one complete learning product so that reading activities are not only listening to stories, but also involve manipulative and kinesthetic activities. This media was developed based on the local culture of Baru Pasar Rebo Village, which highlights the social environment, traditional markets, mosques, schools, and the value of mutual cooperation in stories and illustrations, thus closer to children's real experiences. In addition, this research is specifically oriented towards increasing reading interest in early childhood, not only on initial reading skills or receptive language development. The approach used is multisensory, namely combining visual, verbal, kinesthetic, and tactile experiences in one literacy activity designed according to the developmental characteristics of children aged 5–6 years. The resulting product also has special specifications in the form of large media measuring 40 × 60 cm with 12–16 puzzle pieces that allow it to be used in group reading activities in early childhood education. With these characteristics, this research offers a literacy media model that is more interactive, contextual, and based on local culture compared to previously developed early childhood literacy media.

Previous studies generally show that big books are effective in improving early reading skills, story comprehension, and children's learning motivation, while educational puzzles are effective in increasing engagement, concentration, and interest in learning through play activities. However, most of these studies used the two media separately and focused more on early reading skills, receptive language, or learning motivation, rather than specifically on early childhood reading interest. Furthermore, previous studies generally have not systematically integrated local cultural elements

into literacy learning media. This study differs because it developed Bigzel, a media that combines big books and puzzles in one learning product based on the local culture of Pasar Rebo, using a multisensory and contextual approach, and is specifically aimed at increasing reading interest in children aged 5–6 years in early childhood education (PAUD). Thus, this study does not simply replicate previous research, but presents a new concept in the form of integrative literacy media based on local culture that is expected to provide a more active, enjoyable, and meaningful reading experience for early childhood.

## Method

This study uses a Research and Development (R&D) approach because the main objective of the study is to produce a learning product in the form of Bigzel (a Local Culture-Based Big Book Puzzle) while also testing its feasibility and effectiveness in increasing reading interest in children aged 5–6 years. The R&D approach was chosen because it allows researchers to carry out a systematic product development process through the stages of needs analysis, design, validation, revision, and product implementation so that the resulting media has a high level of validity and practicality in the context of early childhood learning (Kadir & Isnanto, 2024; Simatupang et al., 2023). The development of interactive literacy media based on local culture is also in line with recent research findings that emphasize the importance of concrete, visual, and contextual media in supporting the development of emergent literacy in early childhood (Tatminingsih, 2022; Alotaibi, 2024).

The development model used is the 4D model (Define, Design, Develop, Disseminate) developed by the previous studied (Thiagarajan et al., 1974). This model was chosen because it has simple yet systematic steps, making it suitable for use in developing learning media for master's level research. The define stage was carried out to identify early childhood literacy learning needs through observations of reading activities in the classroom, interviews with teachers, and analysis of the developmental characteristics of children aged 5–6 years. The design stage was carried out by developing a story concept based on local culture in East Jakarta, determining the media size of 40 × 60 cm, designing visual illustrations, and integrating puzzle activities into each part of the story. The develop stage included creating a Bigzel prototype, validation by media experts, material experts, local cultural experts, and PAUD practitioners, then revisions were made based on input from validators. The disseminate stage was carried out on a limited basis through product implementation at several PAUD institutions in the research area and providing usage guidelines to teachers as media users (Kadir & Isnanto, 2024; Wijayani, 2023).

The research was conducted in the Baru Village Area, Pasar Rebo District, East Jakarta, which includes Kartika XV-1 Kindergarten, Kartika X-12 Kindergarten, Kartika XV-6 Kindergarten, Budi Mulia Kindergarten, and Amar Ma'ruf Islamic Kindergarten. The location selection was done purposively because based on the results of initial observations it was found that the reading interest of children aged 5–6 years was still low and the interactive literacy media available in schools was very limited. The research was conducted in the even semester of the 2025/2026 academic year, namely from February to July 2026. The research subjects consisted of two groups, namely validators including media experts, material experts, local culture experts, and PAUD practitioners, and trial subjects consisting of 73 group B children aged 5–6 years in the five PAUD institutions.

The selection of children in group B was based on the consideration that at that age children are at the early literacy development stage which is very sensitive to visual, verbal, and kinesthetic stimulation (Tatminingsih, 2022; Simatupang et al., 2023). The variables observed in this study consisted of independent variables and dependent variables. The independent variable was Bigzel, a learning medium that combines a large-sized big book with educational puzzles based on local culture. The dependent variable was the reading interest of children aged 5–6 years, measured through several indicators: interest in storybooks, attention when the teacher reads the story, enthusiasm for seeing pictures and text, participation in story discussions, involvement in puzzle-solving, ability to maintain focus during reading activities, desire to repeat reading activities, verbal responses to story content, active involvement in shared reading activities, and positive attitudes toward reading activities. These indicators were compiled based on the characteristics of emergent literacy and early childhood language development, which emphasize children's active involvement in enjoyable and meaningful reading activities (Prawiyogi et al., 2020; Alotaibi, 2024).

The research design used was an evaluative development design consisting of a product development stage and a product effectiveness testing stage. The development stage involved needs analysis, product design, expert validation, revisions, and final product development. Furthermore, the effectiveness test was conducted using a pre-experimental one-group posttest design, implementing Bigzel media in group B literacy activities and observing children's reading interest after using the media. Observation results were then categorized into PAUD development criteria: Very Well Developed (BSB), Developing According to Expectations (BSH), Starting to Develop (MB), and Not Yet Developed (BB). This design was chosen because it is appropriate for research on the development of learning media that aims to observe the achievement of children's literacy behavior after receiving treatment in the form of using Bigzel media (Oktaviana et al., 2021; Kadir & Isnanto, 2024).

The research instruments used consisted of a media expert validation sheet, a material expert validation sheet, a local culture expert validation sheet, a teacher/practitioner assessment questionnaire, and a children's reading interest observation sheet. The media expert validation sheet was used to assess aspects of visual appearance, color combination, text readability, material safety, ease of use, and the integration of puzzles with the story. The material expert validation sheet was used to assess the suitability of the story content to the development of children aged 5–6 years, language accuracy, clarity of moral messages, and local cultural relevance. The teacher questionnaire was used to obtain data on the practicality and usefulness of the media in literacy activities, while the observation sheet was used to record children's reading interest behavior during the activities. The use of these various instruments aims to obtain comprehensive data on the validity, practicality, and effectiveness of the developed learning media (Simatupang et al., 2023; Tatminingsih, 2022).

Data collection techniques were conducted through observation, interviews, questionnaires, and documentation. Observations were used to obtain data on the initial state of children's reading interest and engagement during the use of Bigzel media. Semi-structured interviews were conducted with school principals and teachers to obtain information on literacy conditions, the availability of learning media, and the need for developing local culture-based media. Questionnaires were given to validators and practitioners to obtain quantitative data on the level of media feasibility, while documentation was used to supplement the data in the form of activity photos, product

revision notes, validation results, and other supporting documents. This combination of data collection techniques enabled researchers to obtain more accurate and in-depth empirical data regarding the development and implementation process of Bigzel media (Kadir & Isnanto, 2024; Simatupang et al., 2023).

Data analysis was conducted using quantitative and qualitative descriptive methods. Qualitative data from interviews, open-ended observations, and validator suggestions were analyzed through the stages of data reduction, data presentation, drawing conclusions, and developing product revision recommendations. Meanwhile, quantitative data from validation and observation sheets were analyzed using a percentage formula: the total score obtained divided by the maximum score, then multiplied by 100%. The validation percentage results were converted into categories of very appropriate, appropriate, fairly appropriate, less appropriate, and inappropriate. Observations of children's reading interest were categorized into BSB, BSH, MB, and BB according to the PAUD development assessment criteria. Bigzel media was declared effective if the majority of children achieved the BSB and BSH categories and demonstrated increased active involvement, focused attention, and positive responses during reading and puzzle-assembly activities. Quantitative descriptive analysis was chosen because it is appropriate for describing the level of appropriateness and achievement of reading interest indicators in research on the development of early childhood learning media (Oktaviana et al., 2021; Prawiyogi et al., 2020; Alotaibi, 2024).

With these research stages, the development of Bigzel (Local Culture-Based Puzzle Book) is expected to produce valid, practical, and effective learning media in increasing the reading interest of children aged 5–6 years through visual, interactive, and contextual reading experiences based on the local culture of East Jakarta.

## **Results and Discussion**

### ***Research Result***

#### **BIGZEL Media Development Based Culture Local**

This study use Research and Development (R&D) method with the 4D model (Define, Design, Develop, Disseminate) which aims produce literacy media interactive in the form of BIGZEL (Big Book Puzzle Based) Culture Local ) for increase interest read child age 5–6 years. Stages development done in a way systematic start from analysis need until a viable final product used in early childhood education. Define Stage ( Definition ), The define stage is stage beginning in the 4D development model which aims For identify needs, problems, and characteristics media users who will developed. At this stage This researchers do observation and interviews towards teachers in five PAUD institutions in the Kelurahan area New Pasar Rebo, East Jakarta. Results of the activity the show that interest read child age 5–6 years Still classified as low. Most of the child more interested use gadgets, watching videos, or do games that are motor compared to follow activity read and listen stories told by the teacher. Besides that, literacy media available in schools generally Still limited to books story sized small and sheet Work children. The media Not yet capable give experience interesting, interactive, and appropriate reading with characteristics development child age early. In activity read together, children often experience difficulty see illustrations and text in a way clear Because media size is too large small, so that attention and involvement they during activity literacy become less than optimal.

Based on findings said, researchers identify the need development of more literacy

media in accordance with need child age early. The media developed need own large size so that can used For activity read together and easy seen by all child in One group. Besides that, the media needs equipped with visual and manipulative elements for children No only listen story in a way passive, but also involved active through activity play while learning. Cultural integration local nearby with life daily children also become need it is important that the content story more easy understood, more meaningful, and capable foster a sense of closeness emotional child to activity reading. With Thus, the results stage definition This become base for researchers For developing BIGZEL media (Big Book Puzzle Based) Culture Local ) designed For increase involvement active and interested read child age 5–6 years through experience visual, interactive, and contextual literacy.

Design Stage (Designing), At the design stage, researchers compile design beginning BIGZEL product (Big Book Puzzle Based) Culture Local ) based on results analysis needs that have been done at the stage previously. BIGZEL products are designed as a learning medium literacy that combines elements of big books and educational puzzles in One an interactive and appropriate media entity with characteristics development child age 5–6 years. BIGZEL is designed with size 40 × 60 cm so that it can used in activity read together and easy seen by all child in One group. This media consists of over 8–10 pages composed story in a way simple and sequential in accordance ability literacy beginning child age early. Every page equipped with illustration full colored bright For interesting attention child as well as help they understand content story visually. Text used in the form of sentence short, simple, and communicative so that easy understood and can support development Language child.

One of characteristics BIGZEL's main point is there are 12–16 pieces of puzzle on each page story. The puzzle designed to be able to removed and installed returned by the child after activity read ongoing. Activities putting together a puzzle with a purpose For strengthen understanding to content story at a time practice concentration, coordination eyes and hands, visual- spatial abilities, as well as motor fine child. Theme the story used lift culture local East Jakarta, such as mutual cooperation activities, traditional markets, mosques, schools and the environment House citizens. Election theme the intended so that the story more near with experience daily child so that the learning process become more meaningful and contextual. Children don't only get experience read, but also know values social and cultural life in the environment surrounding area. BIGZEL design developed based on principle literacy emergent and learning multisensory. Through this media, children can Study in a way simultaneously through visual activity when observe illustration, verbal when listen and respond story, and kinesthetic when putting together a puzzle. With blend third activity said, BIGZEL is expected capable create experience greater literacy active, fun, and appropriate with characteristics Study child age early.

***Table 1. Early Stages of Puzzle Books***

| No | Picture                                                                               | Information                                                                                               |
|----|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------|
| 1  |    | This large puzzle book can be converted into a reading book and a puzzle. Puzzle book measuring 40x60 cm. |
| 2  |  | Each page is equipped with puzzle pieces. Each page is cut into 12 pieces.                                |

| No | Picture                                                                           | Information                                                                       |
|----|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| 3  |  | This puzzle book can function as a large story book and can function as a puzzle. |
| 4  |                                                                                   | Instruction use media that containing steps for using the Puzzle Book             |



Table 1 presents the early stages of the puzzle book development, which illustrate the initial design and physical characteristics of the developed learning media. The puzzle book is designed in a large format measuring approximately 40 × 60 cm, allowing children aged 5–6 years to interact with the material more easily. The book combines reading activities with puzzle activities, so that children are not only exposed to stories and pictures but are also encouraged to actively arrange the available puzzle pieces. Each page is divided into 12 puzzle pieces, providing children with an opportunity to recognize, match, and reconstruct visual information presented in the book. In addition, the puzzle book can function in two ways, namely as a large storybook and as a puzzle. This dual function makes the media more interactive because children can first engage with the story and illustrations and subsequently use the same pages as puzzle activities.

The development of the puzzle book also includes supporting components, particularly the instruction media that provides information about the steps for using the puzzle book. The inclusion of clear instructions is important because children aged 5–6 years require simple and structured guidance when interacting with learning media. The combination of story content, illustrations, puzzle pieces, and usage instructions creates an integrated learning experience that encourages children's active participation. The visual design shown in Table 1 also demonstrates an effort to incorporate local cultural elements into the learning media, thereby making the content more contextual and familiar to children. Thus, the initial development stage establishes the basic structure of the puzzle book as an interactive medium that integrates reading activities, visual recognition, and puzzle-solving activities while introducing local cultural content. Development Stage, At the stage This done validation by experts material, media expert, expert culture local, and PAUD practitioners. Validation results show that all over aspect get category **very worthy**.

**Table 2. Expert Validation Results**

| No | Validator                              | Percentage | Category    |
|----|----------------------------------------|------------|-------------|
| 1  | Subject Matter Expert                  | 100%       | Very Worthy |
| 2  | Media Expert                           | 97%        | Very Worthy |
| 3  | Cultural Expert Local                  | 100%       | Very Worthy |
| 4  | Early Childhood Education Practitioner | 98%        | Very Worthy |

Based on results said, BIGZEL media fulfills aspect suitability material, readability language, quality visual design, security materials, and relevance culture local so that can continued to the empirical test stage.

**Table 3. Final Model of the BIGZEL Puzzle Book**

| No | Picture                                                                             | Information                                                                                                                                                                  |
|----|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1  |  | BIGZEL Puzzle Book Cover (results) revision) with appearance more interesting, reflective culture local, as well as equipped information that illustration produced using AI |

| No | Picture                                                                           | Information                                                                                                                                                                                                                                      |
|----|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2  |  | story page that has been revised with sentence more simple, communicative, and easy understood children. Equipped sentence lighter                                                                                                               |
| 3  |  | Illustration picture clarified with color more bright, contrasting, and attractive attention child                                                                                                                                               |
| 4  |  | Puzzle page, every page made become shaped puzzle pieces aspect four with larger size proportional to make it easy compiled. Printed use material albatross. Using safe and non - toxic ink smelly stinging so that suitable For child age early |

Table 3 presents the final model of the BIGZEL Puzzle Book after the revision stage, showing improvements in the cover, story content, illustrations, and puzzle components. The cover was revised to provide a more interesting appearance by incorporating cultural elements and clearer information about the book, while the story pages were improved by using simpler, more communicative, and child-friendly sentences that are easier for children to understand. The illustrations were also refined through brighter and more contrasting colors to increase visual appeal and attract children's attention. Furthermore, each story page was transformed into a puzzle by dividing the images into larger and proportionally appropriate pieces, making them easier for children to assemble. The use of albatross material and safe, non-toxic printing ink further supports the suitability of the BIGZEL Puzzle Book for early childhood users. Overall, the final model demonstrates that the revisions were directed toward improving the visual quality, readability, usability, safety, and attractiveness of the puzzle book as a local culture-based learning medium.

### Limited Dissemination Stage

Disseminate stage in study development This done in a way limited with objective For introducing and implementing BIGZEL media (Big Book Puzzle Based) Culture Local ) in the PAUD environment which becomes location research. Dissemination Not yet done in a way wide, but focused on PAUD institutions in the Kelurahan area Only Pasar Rebo is involved in trial product. At the stage This, BIGZEL media has through the revision process based on input expert Then implemented in activities learning literacy in the classroom Group B. The teacher is given explanation about objective media use, steps implementation activity read together, way use a puzzle on each page story, and technique submit question a lighter for children involved active during the learning process ongoing.

Implementation conducted at five PAUD institutions with involving 73 children age 5–6 years as test subjects. Activities learning started with the teacher introducing title stories and characters found in BIGZEL, then the teacher reads them story while show

illustration sized big to all over children. After the activity read finished, son requested For release and arrange return puzzle pieces fit image on the page story while discuss about content stories and values culture local contained therein. Limited dissemination stage results show that BIGZEL media can used with well by teachers and accepted in a way positive by the child. The child looks more focus notice story, enthusiasm follow activity reading, and active participate in put together puzzles and answer questions asked by the teacher. The teacher also conveys that BIGZEL helps create atmosphere learning greater literacy interesting, interactive, and fun compared to use book story conventional. With Thus, the disseminate stage is limited show that BIGZEL has potential For implemented as a learning medium literacy in PAUD, in particular in effort increase interest read child age early through activity integrated reading visual, narrative, manipulative and cultural elements local.

### Model Feasibility

Eligibility BIGZEL (Big Book Puzzle Based) media theory Culture Local ) is determined based on results validation carried out by experts material, media expert, expert culture local, and PAUD practitioners. Validation results show that percentage evaluation is in the range of 97–100%, which is based on criteria media suitability including in very decent category. The height percentage the show that the media developed has fulfil required standards For used in learning child age early.

Expert assessment show that a number of aspect get very high score. Aspect First is suitability content story with characteristics development child age 5–6 years, so that the material presented assessed in accordance with level understanding, experience, and needs Study child age early. Aspect second is use simple and communicative language, so sentences in BIGZEL easy understood by children and supported development ability speaking they. Besides that, the illustration is attractive, proportional, and colorful bright assessed capable interesting attention child as well as help they understand content story visually. From the side security, the validators assess that materials used as well as the size of the puzzle has suitable and safe For used by children age early, so that can minimize risk during activity learning ongoing.



**Figure 1.** *Bigzel Media Expert Validation Results Graph*

Validation results from the experts show that the BIGZEL Puzzle Book media is stated worthy For developed as a learning medium in increase interest read child age 5–6 years. Validation conducted by experts material, media expert, expert culture local, and PAUD practitioners show that the media has fulfil aspect eligibility content, design, use language, elements culture local, as well as convenience use in learning child age early. Besides through theoretical testing, the suitability of the media is also strengthened through empirical testing involving child age 5–6 years as respondents. Empirical test implemented in three stage, namely trial individual (one to one), trial group small group, and trial group large (field test). In the trial stage individual, research

involving 5 children For know Power media pull, ability child understand story, and convenience child in put together the puzzle. Next, try it out group small implemented with 10 children For observe interaction child during using media in a group. Stage final is a trial group large involving 15 children For see media effectiveness in situation more learning real.

Based on results observations on the three trial phase said, children show very positive response to use BIGZEL Puzzle Book. On trial individual, child looks enthusiastic observe picture, listening story, and put together the puzzles available on each page. Children also show a sense of curiosity high to content story read by the teacher. On trial group small, children seen more active interact with friends and teachers during activity read ongoing. Children are able to answer question lighter, connect picture with content story, and Work The same in compile puzzle pieces to form complete picture. Activities read become more interesting Because child No only listen story, but also involved direct in activity play. Temporary that, on trial group big, atmosphere learning become more lively and fun. Almost all over child show good attention during activity reading, active answer questions, and enthusiastic put together a puzzle on each page story.

The child is seen more focus follow activity from beginning until end compared to when using reading media conventional. Based on findings said, can concluded that the BIGZEL Puzzle Book media does not only worthy in a way theoretical, but also proven worthy in a way empirical. This media capable increase involvement child in activity read through combination activity read stories and playing puzzles. Besides that, use uplifting story culture local make child more easy understand content story Because near with environment life they everyday. Therefore that, BIGZEL Puzzle Book stated worthy used as a learning medium For increase interest read child ages 5–6 years in PAUD institutions. In a way overall, results validation the show that BIGZEL has fulfil principles development of PAUD learning media, namely safe, interesting, contextual, educational, and appropriate with stage development children. With Thus, BIGZEL media stated worthy in a way theoretical For used as a learning medium literacy in effort increase interest read child age 5–6 years. Eligibility empirical obtained through observation interest read child after using BIGZEL.

**Table 4. Results of Children's Reading Interest After Using BIGZEL**

| No | Category                  | Number of children | Percentage |
|----|---------------------------|--------------------|------------|
| 1  | Very Well Developed (BSB) | 27                 | 36.90%     |
| 2  | Develop As Expected (BSH) | 46                 | 63.10%     |
| 3  | Start Developing (MB)     | 0                  | 0%         |
| 4  | Not Yet Developed (BB)    | 0                  | 0%         |

Table 4 presents the results of children's reading interest after using the BIGZEL Puzzle Book. The results show that 27 children (36.90%) were categorized as Very Well Developed (BSB), while 46 children (63.10%) were categorized as Developed as Expected (BSH). Meanwhile, no children were classified as Start Developing (MB) or Not Yet Developed (BB), with both categories recording 0%. These findings indicate that all children reached at least the expected level of reading interest development after participating in activities using BIGZEL. The distribution suggests that the BIGZEL Puzzle Book provided children with an engaging learning experience through the integration of reading activities, visual illustrations, and puzzle-solving tasks. The absence of children in the MB and BB categories further indicates that the developed media was able to support children's reading interest development at the expected level or higher. Overall, the results demonstrate that BIGZEL can serve as an interactive local

culture-based learning medium that supports the development of reading interest among children aged 5–6 years.

**Table 5.** *Results of Children's Reading Interest After Using BIGZELE Media*

| Category                  | Number of children | Percentage |
|---------------------------|--------------------|------------|
| Very Well Developed (BSB) | 27                 | 36.9%      |
| Develop As Expected (BSH) | 46                 | 63.1%      |
| Start Developing (MB)     | 0                  | 0%         |
| Not Yet Developed (BB)    | 0                  | 0%         |
| Amount                    | 73                 | 100%       |

Based on the results of the assessment of children's reading interest after using the BIGZEL Puzzle Book media, data obtained showed that 27 children (36.9%) were in the Very Well Developed (BSB) category and 46 children (63.1%) were in the Developing According to Expectations (BSH) category. There were no children in the Starting to Develop (MB) or Not Yet Developed (BB) categories. These results indicate that the use of BIGZEL media can have a positive impact on increasing reading interest in children aged 5–6 years.

The findings of this study align with Piaget's theory of cognitive development, which states that children aged 5–6 are in the preoperational stage, a stage where children more easily understand information through concrete objects, images, symbols, and direct experience. BIGZEL, which combines large-scale illustrated stories with puzzle-assembling activities, provides a concrete experience that aligns with the thinking characteristics of children at this stage. Children not only listen to the story but also manipulate the puzzle pieces, making the process of understanding the story more meaningful.

The results of this study also support Vygotsky's theory of the Zone of Proximal Development (ZPD) and scaffolding. In using BIGZEL media, the teacher acts as a facilitator, providing assistance through reading stories, asking provocative questions, and guiding children as they assemble puzzles. This assistance allows children to achieve skills they previously couldn't achieve independently. As the activity progresses, children become more confident in answering questions, retelling stories, and completing puzzles independently.

Furthermore, the results of this study align with constructivism theory, which emphasizes that children construct knowledge through active learning experiences. In BIGZEL, children are not passive recipients of information, but are directly involved in observing images, understanding stories, assembling puzzles, and discussing them with teachers and peers. These activities provide children with the opportunity to construct their own understanding of the story's content, fostering a natural interest in reading through enjoyable learning experiences.

## **Discussion**

Research result show that the 4D model is effective used in BIGZEL media development because give systematic stages start from identification needs, design, development, to validation product. Define stage is successful identify low interest read children and limitations of literacy media in PAUD, whereas the design and development stage produces appropriate media with characteristics development child as well as fulfil standard quality through validation expert. BIGZEL's advantage lies in the integration of big books and puzzles based on culture local in one learning medium so that activity read become more interactive, contextual, and multisensory. Findings This

in line with research by the previous studied stated that that big book media is effective increase involvement and interest read child (Kadir & Isnanto, 2024; Tatminingsih, 2022).

From the aspect eligibility, percentage validation 97–100 % indicates that BIGZEL has very good quality in aspects content, language, visual appearance, security, and integration culture local. This result support by the previous studied who emphasized that the big book media is valid and interesting capable increase motivation read children (Simatupang et al., 2023; Oktaviana et al., 2021). Use a close story with life everyday life, such as mutual cooperation and the environment public around, making BIGZEL not only worthy in a way technical, but also worthy in a way pedagogical and cultural.

Besides that, the results of empirical tests show that BIGZEL is effective increase interest read child age 5–6 years. Children show more attention Good when the teacher reads story, enthusiasm see BIGZEL page, active answer questions, interested put together the puzzle until finished, and request activity read repeated back. Findings This in line with the previous studied stated that that game educative like a puzzle can increase motivation, engagement, and interest child to activity literacy (Irwansyah & Meilani, 2023; Sari & Purnomo, 2023; Alotaibi, 2024). The effectiveness of BIGZEL is influenced by a combination of visual elements through illustration colored bright, element narrative through story based culture local, and elements manipulative through activity putting together a puzzle. Combination third element the produce experience active and fun learning so that capable increase attention, understanding, and motivation Study child in activity literacy beginning. This study strengthen theory constructivism and literacy emergen that child Study read in a way more optimal when get active, concrete, and meaningful experiences. Cultural integration local also supports approach learning contextual in PAUD.

## **Conclusion**

Based on the development research findings, the initial reading interest of children aged 5–6 years was not optimally developed. Children showed limited focus, low participation in story discussions, and inconsistent interest in books, indicating the need for concrete, visual, interactive, and developmentally appropriate literacy media. Bigzel (Local Culture-Based Puzzle Book) was developed using the 4D model, comprising define, design, develop, and limited disseminate stages. The define stage involved needs analysis, child characteristics, and examination of local culture-based curriculum and materials. The design stage focused on developing the storyline, big book illustrations, and integrated puzzle activities. During the develop stage, Bigzel was validated by media, material, local culture, and practitioner experts. Revisions addressed contextual storytelling, material safety and durability, and puzzle-piece design. Expert and practitioner validation resulted in a feasibility level of 97–100%, indicating that Bigzel was highly feasible in terms of material suitability, visual quality, readability, local cultural integration, safety, and ease of use.

A large-group trial involving 73 children from five early childhood education institutions showed that 36.9% achieved the Very Well Developed (BSB) category, while 63.1% were Developing as Expected (BSH). No children were classified as Starting to Develop (MB) or Not Yet Developing (BB). These findings demonstrate that Bigzel is feasible and has potential to stimulate reading interest among children aged 5–6 years.

Bigzel offers an alternative literacy medium integrating reading, play, and local culture. However, the study was limited by restricted dissemination, a small sample, and the absence of a control group and long-term evaluation. Future research should involve larger samples, experimental designs, follow-up assessments, and digital development to broaden accessibility.

## References

- Alotaibi, M. S. (2024). Game-based learning in early childhood education: A systematic review and meta-analysis. *Education Sciences*, 14(2), 145. <https://doi.org/10.3390/educsci14020145>
- Bleses, D., Højen, A., Justice, L. M., Dybdal, L., Andersen, M. K., Christensen, K. R., Hvidman, C., & Andersen, K. R. (2021). Sustained effects of an early childhood language and literacy intervention through second grade: Longitudinal findings of the SPELL trial in Denmark. *PLOS ONE*, 16(10), e0258287. <https://doi.org/10.1371/journal.pone.0258287>
- Bus, A. G., Van IJzendoorn, M. H., & Pellegrini, A. D. (1995). Joint book reading makes for success in learning to read: A meta-analysis on intergenerational transmission of literacy. *Review of Educational Research*, 65(1), 1–21. <https://doi.org/10.3102/00346543065001001>
- Cun, A. (2021). Funds of knowledge: Early learning in Burmese families. *Early Childhood Education Journal*, 49, 711–723. <https://doi.org/10.1007/s10643-020-01105-w>
- Gay, G. (2018). Culturally responsive teaching: Theory, research, and practice. *Teachers College Record*, 120(10), 1–44. <https://doi.org/10.1177/016146811812001002>
- Grover, V., Snow, C. E., Evans, L., & Stromme, H. (2023). Overlooked advantages of interactive book reading in early childhood? A systematic review and research agenda. *Acta Psychologica*, 239, 103997. <https://doi.org/10.1016/j.actpsy.2023.103997>
- Irwansyah, I., & Meilani, R. N. (2023). Enhancing interest in reading through letter puzzle media in early childhood education. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 7(4), 4567–4578. <https://doi.org/10.31004/obsesi.v7i4.5123>
- Justice, L. M., & Pullen, P. C. (2003). Promising interventions for promoting emergent literacy skills: Three evidence-based approaches. *Topics in Early Childhood Special Education*, 23(3), 99–113. <https://doi.org/10.1177/02711214030230030101>
- Kadir, T. T., & Isnanto, I. (2024). Developing big-book literacy media as reading learning media using the 4D model. *Jurnal Basicedu*, 8(1), 210–221. <https://doi.org/10.31004/basicedu.v8i1.6821>
- Lepola, J., Kajamies, A., Laakkonen, E., & Collins, M. F. (2023). Opportunities to talk matter in shared reading: The mediating roles of children's engagement and verbal participation in narrative listening comprehension. *Early Education and Development*, 34(8), 1896–1918. <https://doi.org/10.1080/10409289.2023.2188865>
- Nuha, S. J., Husni, M., Rodiyah, H., & Taufiq, M. (2025). The Effect of the Storytelling Approach on the Reading Interest of Fifth-Grade Students in Indonesian Language Lessons at SDN 1 Bagik Payung Timur. *Cokroaminoto Journal of Primary*

- Education, 8(4). <https://doi.org/10.30605/cjpe.8.4.2025.7067>
- OECD. (2023). PISA 2022 results: The state of learning and equity in education. *OECD Publishing*. <https://doi.org/10.1787/53f23881-en>
- Oktaviana, W., Warmansyah, J., & Utami, W. T. (2021). The effectiveness of using big book media on early reading skills in 5–6 years old children. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 5(2), 1402–1413. <https://doi.org/10.31004/obsesi.v5i2.1137>
- Prawiyogi, A. G., Setiawan, A., & Rahmawati, D. (2020). The use of big book media to improve elementary students' reading interest. *Jurnal Pendidikan Sekolah Dasar*, 6(2), 112–120. <https://doi.org/10.30870/jpsd.v6i2.8345>
- Rideout, V. (2017). The common sense census: Media use by kids age zero to eight. *Common Sense Media Research Report*. <https://doi.org/10.1037/e576842012-001>
- Sari, H. P. A., & Purnomo, H. (2023). Implementation of reading methods using letter puzzles to increase interest in learning to read in early childhood. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 7(3), 3789–3801. <https://doi.org/10.31004/obsesi.v7i3.4679>
- Simatupang, N. D., Siregar, E., & Harahap, S. (2023). Development of a Big Book Desk Calendar Storybook to Improve Early Childhood Literacy. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 7(5), 6123–6135. <https://doi.org/10.31004/obsesi.v7i5.4987>
- Syahrani, F. P., & Afrianingsih, A. (2025). The Use of Digital Puzzle Game Learning Media to Improve the Cognitive Abilities of Children Aged 5–6 Years at Pos PAUD Delima Jobokuto, Jepara. *Cokroaminoto Journal of Primary Education*, 8(4), 1801–1815. <https://doi.org/10.30605/cjpe.8.4.2025.7162>
- Tatminingsih, S. (2022). Analysis of the Big Book Development Process as a Strategy for Stimulating Early Childhood Language Development. *Jurnal Obsesi: Jurnal Pendidikan Anak Usia Dini*, 6(6), 6201–6212. <https://doi.org/10.31004/obsesi.v6i6.3368>
- Thiagarajan, S., Semmel, D. S., & Semmel, M. I. (1974). Instructional development for training teachers of exceptional children. *Indiana University*. <https://doi.org/10.13140/RG.2.2.23014.47682>
- Wijayani, I. A. I. (2023). Big book media in early reading learning of first grade students. *Jurnal Pendidikan Dasar Indonesia*, 8(3), 201–212. <https://doi.org/10.26737/jpdi.v8i3.4210>