

## **Enhancing Early Literacy and Numeracy Skills through Diverse Media**

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### **Abstract**

*Early childhood literacy and numeracy development are essential for cognitive and language growth. Introducing these skills at a young age is crucial, and media variation can enhance interest and motivation. This qualitative study, using a phenomenological approach, explored the use of media in early childhood literacy and numeracy education. Data was collected through interviews, observations, and documentation. Results indicate that media used includes humans (teachers), educational game tools, and varied learning programs. Variation techniques encompass combining media, varying methods within a medium, daily media changes, periodic media variety, and classroom-external media use.*

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## INTRODUCTION

Developing literacy and numeracy skills in early childhood is crucial for setting a solid foundation for future learning. These fundamental skills are essential building blocks for primary education and lifelong success. They empower individuals to reach their full potential and contribute to a more equitable society (French, 2013).

In Indonesia, early childhood education institutions and the community have differing views on the importance of teaching reading, writing, and counting skills to young children (Windayani et al., 2021). Early childhood education should prioritize the development of essential literacy and numeracy skills. Reading, writing, and counting are fundamental building blocks for a child's cognitive and language development. Based on the Child Development Achievement Level Standards on the Level of Development Achievement of Children aged 4-6 years in the cognitive aspects of the symbolic thinking domain (Peraturan Menteri Pendidikan Dan Kebudayaan Republik Indonesia Nomor 137 Tentang Standar Nasional Pendidikan Anak Usia Dini, 2014) states the following:

**Table 1.** Developmental Achievement Levels of Cognitive of 4-6 Year Olds

Scope of Development	Child Development Achievement Level	
	4-5 Years of Age	5-6 Years of Age
Symbolic Thinking	<ol style="list-style-type: none"> <li>1. Count the number of objects from one to ten</li> <li>2. Recognize the concept of number</li> <li>3. Recognize number symbols</li> <li>4. Recognize letter symbols</li> </ol>	<ol style="list-style-type: none"> <li>1. List the number symbols 1-10</li> <li>2. Using number symbols to count</li> <li>3. Matching numbers with number symbols</li> <li>4. Recognize various kinds of vowel and consonant letter symbols 4.</li> <li>5. Representing various objects in the form of pictures or writing (there are pencil objects followed by writing and pencil pictures)</li> </ol>

In addition, in the aspect of language development, several literacy and numeracy indicators must be achieved by early childhood, including the following:

**Table 2.** Developmental Achievement Levels of Language of 4-6 Year Olds

Scope of Development	Child Development Achievement Level	
	4-5 Years of Age	5-6 Years of Age
Literacy	<ol style="list-style-type: none"> <li>1. Recognize symbols</li> <li>2. Recognize the sounds of</li> </ol>	<ol style="list-style-type: none"> <li>1. List familiar letter symbols</li> <li>2. Recognize the initial letter sounds of the names of the objects around them</li> </ol>

animals/objects in the vicinity	3. List groups of pictures that have the same initial letter/sound.
3. Makes meaningful scribbles	4. Understand the relationship between letter sounds and shapes
4. Imitate (write and say) the letters A-Z	5. Read own name
	6. Writing own name
	7. Understand the meaning of words in stories

Based on the indicators mentioned, it is clear that literacy and numeracy are indeed aspects of development that must be achieved by early childhood in preparation for further education. Istiningsih et al. also mentioned that literacy and numeracy learning in the early childhood realm is a stage that provides guidance and stimulus for preparation for the next level of education (Istiningsih et al., 2018).

Difficulties in reading and writing can result in suboptimal academic performance in other subjects. Numeracy is not only the basis of many other subjects, such as physics and chemistry, but it is also an important element in everyday life. Inadequacies in literacy and numeracy can potentially reduce children's confidence in their capacity to succeed.

Hurlock, as cited by Sit, explains that interest plays a crucial role (Sit, 2017). Throughout childhood, interest is a potent source of motivation to learn. Interest adds excitement to any activity a person engages in. An activity that does not satisfy and stimulate the individual results in boredom. Boredom arises because children feel forced to do activities that do not meet their needs or satisfaction. When children are bored, they will engage in mischief and cause difficulties for others in the hope that there will be a commotion so that a boring situation becomes exciting.

Therefore, teachers must arouse children's interest in learning to motivate them to actively participate in the learning process, especially in literacy and numeracy. A teacher must maintain the conditions and situations in the literacy and numeracy learning process in order to maintain children's learning interest during the learning process so that literacy and numeracy learning objectives can be realized effectively and efficiently.

Variations in teaching can generate interest in learning literacy and numeracy in early childhood. Setiyaningsih's research states that teachers who use variations in teaching are able to foster student interest in learning (Setiyaningsih & Busyairi, 2020). It shows that teaching variation skills dramatically affects students' interest in learning.

Variations in teaching can also eliminate children's boredom with learning and motivate them to learn literacy and numeracy. Johar and Hanum stated that using variation in learning activities can eliminate children's boredom and increase children's learning motivation (Johar & Hanum, 2021). Variation skills in the learning process include three aspects: variation in teaching style, variation in using media, and variation in interaction.

Using media is one variation in teaching that can arouse interest and stimulate early childhood literacy and numeracy learning. Based on the results of Nurfadhillah's research, learning media is the most critical element in the learning process (Nurfadhillah et al., 2021). Using various types of

learning media can be an interesting way to impart knowledge to students. In addition, Supardan also revealed that the use of varied media can help stimulate children's senses, thus increasing children's attention, motivating them to learn, encouraging their thinking, and improving their learning abilities (Supardan, 2023).

Based on observations at an Islamic kindergarten in Sambas, literacy and numeracy are introduced by teachers using a variety of media, not just one media that is used every day. It can be seen when teachers use thematic dice media to introduce literacy and numeracy, which varies with letter card media, number card media, and the blackboard. Then, the pictorial song verse poster media is varied by singing. Based on this explanation, interesting media variations are needed to introduce literacy and numeracy in early childhood so that teachers can arouse children's interest and motivate them to learn literacy and numeracy. This research reveals some of these media variations to support active, creative, innovative, and fun learning implementation.

## **METHOD**

This qualitative phenomenological study delved into the experiences of early childhood teachers using diverse learning media to teach literacy and numeracy. Participants were selected through purposive sampling, including teachers from classes B1, B2, and B3, as well as the kindergarten principal. The research was conducted at an Islamic kindergarten in Sambas, West Kalimantan, known for its integrated approach to literacy and numeracy development. The school employs a variety of media and educational props within thematic learning and diverse activities.

The data collection techniques used were interviews, observation, and documentation. The three techniques produced data related to the practice of kindergarten activities that support the introduction of literacy and numeracy skills in early childhood.

Data analysis was carried out during and after collection within a certain period (Sugiyono, 2022). As for how to analyze the data, researchers use an interactive model. The interactive model analysis technique consists of three components: 1) Data Reduction, 2) Data Display, and 3) Conclusion Drawing and Verification (Purwanto, 2022).

To ensure data validity, this study employed triangulation and member checks. These techniques helped establish the credibility, transferability, dependability, and confirmability of the data. Triangulation involved comparing findings from multiple sources, while member checks verified the accuracy of the data with participants (Moleong, 2021).

## **RESULT AND DISCUSSION**

### **a) Literacy and Numeracy Learning Media**

Gerlach & Ely in Prastowo said, "A medium, conceived is any person, material or event that establish condition which enables the learner to acquire knowledge, skill, and attitude." (Prastowo, 2019). Based on Gerlach & Ely's opinion, media is any person, material, or event that builds conditions that enable students to acquire knowledge, skills, and attitudes. It shows that the media is not only a tool but can also be in the form of people, materials, and

activities that can assist teachers in optimizing early childhood development and skills.

Referring to Gerlach and Ely's opinion, the media used by teachers in teaching literacy and numeracy can be classified as follows:

1) Human as Literacy and Numeracy Learning Media

The Association for Educational Communication and Technology (AECT) classifies teachers as people (humans) who act as learning resources who are professionally educated to teach (Suryadi, 2022). Based on the results of interviews with teachers, the teachers are graduates of Bachelor (S1) education, nine of whom graduated from the Bachelor of Islamic Religious Education and four from the Bachelor of Early Childhood Education (PAUD).

In general, teachers know their duties and roles as educators. Although most have a non-early childhood education background, teachers often participate in KKG activities and workshops to develop their knowledge in early childhood, such as making APE media. Teachers have applied the use of humans as media in the learning process to the theme of professions. Teachers introduce the profession of a teacher to children through themselves.




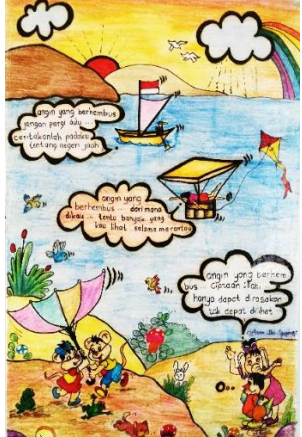
2) Educational Games as Literacy and Numeracy Learning Media

Educational Game Tools are part of learning media development. They are designed to optimize early childhood development and intelligence and have educational value (Kusuma & Listiana, 2021). Fadlillah divides Educational Game Tools into two categories: outside the classroom and in the classroom (Fadlillah, 2019). The types of educational game tools used by teachers in this study include outdoor educational game tools and in-class educational game tools.

Based on the results of interviews with teachers, Educational Game Tools provided for children to play in the classroom, including picture cards, letter cards, number cards, word cards, counting sticks, colorful bottle caps, sharpener marks, *bowling* bottles, color balls, smart trees, picture reading books that have more pictures than words and have large letters, colored pencils, origami paper, number *puzzles*, box books, natural objects such as oranges, bananas, magazines, newspapers, thematic dice, smart trees, picture song posters, and *number chart* posters.

The teacher also said that most of the Educational Game Tools in the classroom are the result of the teacher's own creativity, including thematic dice games, song verse posters, smart trees, counting sticks, fishing rods, various cards (number and letter cards and picture word cards), and number and letter calendars. Teachers use these media, not just one, to introduce literacy and numeracy.

**Table 3. Examples of Educational Game Tools Usage**

Media Name	Picture	Description
Smart Tree		<p>This media is included in tactile-based media that resembles the original form. It is presented using various media and learning methods to attract children's attention. The smart tree is made from used items.</p>
Thematic Dice Game		<p>This visual media is presented by singing and playing so that children learn visually and with sounds and movements. Various media, such as dice, letter cards, number cards, and the teacher himself, present the thematic dice game.</p>
Letter Cards		<p>This card is brightly colored and contrasting, so the writing is still clearly visible even from a considerable distance. The combination of these colors makes the media made by the teacher look attractive.</p>
Illustrated Song Verse Poster		<p>This visual media is varied with audio media, namely songs. Children are invited to read the song's verses while singing and looking at the pictures on the poster. The verses of the song have meanings under the pictures made. So, when singing, the teacher does not point to the poem but to the picture that shows the meaning of the poem.</p>

Learning media does not have to be expensive. However, it can be made from simple materials around the school or unused items (Ramat, 2022). Teachers who make educational game tools use materials that come from used items and materials that are not too expensive. The smart tree, for example, the pot is made from an old bucket, the trunk from an aqua bottle, the twigs from wire wrapped with newspaper and duct tape, and the leaves from cardboard paper. In addition, song verse posters, number and letter cards are made from cardboard, sticks from eating chopsticks, and thematic dice from used boxes. In addition, the teacher said in her interview that in introducing literacy and numeracy in the classroom, she usually

also uses real object media, for example, oranges, bananas, and rambutans.



**Figure 1.** Counting Bananas: A Simple Math Activity



**Figure 2.** Counting Activity through Cape Flower Stringing

Children are also occasionally invited to learn about literacy and numeracy outside the classroom using natural materials so that learning is more varied. The teacher mentioned using objects in the schoolyard as media to introduce literacy and numeracy, such as sand, small stones, leaves, cape flowers, grass, swings, and the wind. As stated by Haryana, creative teachers can utilize the surrounding environment as an exciting learning medium (S. Haryanti, 2020).

### 3) Literacy and numeracy learning programs/activities

Early childhood learning media can also be in the form of programs or activities that can assist teachers in optimizing early childhood development and skills, especially skills in literacy and numeracy. Based on the observation that teachers also use worship practices and drum band activities as media in introducing literacy and numeracy in early childhood.



**Figure 3.** Exploring literacy and numeracy skills through religious activities

Based on the researcher's observations during this worship practice activity, children can learn to count. For example, in prayer activities, children read the prayer of ruku' and prostration three times and read tasbih ten times at the end of the prayer.



**Figure 4.** A rhythmic approach to learning: Introducing literacy and numeracy through drum band activities.

Drum band activities can also train children to count. Based on the results of the researchers' observations in drum band activities, children are trained to count the number of strokes of the sticks on the drum by count.

### **b) Media Variation in Teaching literacy and numeracy**

Using a variety of media can be a captivating way to introduce literacy and numeracy to young children, helping to prevent boredom and disengagement (D. Haryanti & Tejaningrum, 2020). Therefore, it is necessary to make variations in using media to introduce literacy and numeracy in early childhood so that children are always motivated to learn. Teachers vary the media through several techniques, as follows:

#### 1) Varying several media in a single meeting

Based on the results of interviews with teachers, they often use more than one learning media at one meeting to introduce literacy and numeracy. However, among these media, some are the primary media,



namely thematic media, and some are additional media in learning. Thematic media is created and presented according to the learning theme. Thematic media aims to introduce material related to the learning theme. However, this thematic media is varied with other media to help complete the presentation of the material.

The form of media variation in this technique is like the thematic dice game. The thematic dice game is presented using various media, such as dice, letter cards, number cards, and whiteboards. Children are invited to pass and throw dice to train motor aspects, look for number symbols on number cards to train cognitive aspects, and look for letter symbols on letter cards to train language aspects. Then, the children write the number symbols on the board.

Teachers' practices in this study reflected efforts to involve all resources, equipment, and learning media in children's development, especially in literacy and numeracy. This is relevant to Putri's statement that stimulating literacy skills can be done by utilizing various learning media (Putri, 2022).



**Figure 5.** Thematic Dice Media Varied with Other Media

## 2) Varying a medium with several learning models

Teachers teach literacy and numeracy in early childhood using one piece of learning media but implement several learning methods. The use of one media through several learning methods can be seen in the Thematic Dice game. Teachers vary the Thematic Dice media through singing, playing, and question-and-answer methods.



**Keterangan :**

1. Anak mengoper dadu sambil bernyanyi (metode bernyanyi)
2. Jumlah titik dadu dicocokkan dengan urutan gambar huruf yang ditempel di papan tulis
3. Anak bermain mencari huruf di tumpukan kartu huruf (metode


**Figure 6.** Thematic Dice Media Varied with Several Methods

3) Switch up the media daily

The teacher stated that different media are used in teaching literacy and numeracy. The aim is so that children do not feel bored and saturated. Masnipal stated that early childhood likes new learning situations and interaction patterns because the same learning process with the same methods and teaching style every day can make children bored (Masnipal, 2013).

The researcher observed that teachers use different literacy and numeracy learning media daily. For example, today, using thematic dice media, and the next day, using different media again. So, in one week, the media used is varied and always different daily.

**Table 4. Teachers employed a wide range of media tools on a daily basis.**

N.	Observation Time	Variation of Media Used
1	Day One	 <p><b>Figure 7.</b> Learning literacy and numeracy by using thematic dice varied with number and letter cards</p>

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2 Day Two



**Figure 8.** Learning literacy and numeracy through song verse poster media with singing method.

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3 Day Three



**Figure 9.** Learning literacy and numeracy through storytelling activities

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4) Using various media periodically

Old media, often overlooked, can be a treasure trove for early childhood educators. These tools, once used for different purposes, can now be repurposed to teach literacy and numeracy. The key is to present and play with them in innovative ways, keeping them fresh and engaging for the children. Martuti's insight that children find joy in playing with tools that change periodically is a testament to the adaptability of old media (Martuti, 2012).

According to the teacher, they often use the same media but at different times and ways. For example, today's literacy and numeracy meeting was taught with innovative tree media. The media will be shown again a week or two later using a different method or game. The smart tree game will seem like a new game to the child even though the child has played it before.

## 5) Varying the use of media outside the classroom



**Figure 10.** Counting through Finger Gymnastics

Based on the interview results, teachers also utilize media outside the classroom to teach literacy and numeracy to children, such as counting through finger exercises outside the classroom, writing on sand and wind, counting by tying cape flowers, and others. Objects in the school environment are used to introduce the basic concepts of literacy and numeracy to children. Teachers also said several play activities outside the classroom are used in teaching literacy and numeracy, including counting games in a circle, jumping number boxes, running competitions to move number flags, and block arranging competitions.

## **CONCLUSION**

Learning to read, write, and count in early childhood is a significant developmental milestone. The research findings described above provide valuable insights into the importance of introducing literacy and numeracy through educational play tools. This knowledge is crucial for teachers to master, as it can make literacy and numeracy active, creative, innovative, and fun learning experiences for children. Based on the results of the research, it can be concluded that:

1. The media teachers use to introduce literacy and numeracy in early childhood are a) Human (teacher). Teachers have applied the use of humans as media in the learning process to the theme of professions. Teachers introduce the profession of a teacher to children through themselves; b) Educational Game Tools (APE), consisting of APE in the classroom such as picture cards, letter cards, number cards, word cards, counting sticks, oranges, bananas, magazines, newspapers, thematic dice, smart trees, posters of illustrated song verses, and Number Chart posters, as well as APE outside the classroom such as sand, small stones, leaves, cape flowers, grass, swings, and wind; and c) Learning Programs/Activities, such as worship practices and drum band activities.
2. Teachers' literacy and numeracy learning media variation techniques consist of: a) Varying several learning media in one meeting. Teachers use multiple learning media in one meeting to introduce literacy and numeracy to early childhood; b) Varying one media with several learning methods.

Teachers teach literacy and numeracy to young children using one piece of learning media but implement it with several learning methods; c) Using different media every day. Teachers present different media in teaching literacy and numeracy. d) Use media periodically. Teachers can use old and previously used media to teach early childhood literacy and numeracy, which are presented with different methods than before; and e) Varying media outside the classroom. Teachers utilize media outside the classroom to teach literacy and numeracy to children, such as counting through finger gymnastics activities, writing on sand and wind, counting through tying cape flowers, and many others.

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