

# Analysis of The Needs of Receptive and Expressive Language Learning Model For Early Childhood with A Multimedia-Based Block Center Approach

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**Abstract.** The development of a multimedia-based block center approach to receptive and expressive language learning for early childhood is an effort to improve children's language skills. Therefore, this study aims to analyze the needs of a multimedia-based block center approach to receptive and expressive language learning for children aged 5-6 years. This research uses a Research and Development (R&D) approach at the Research and Information Collecting stage. Data collection methods were carried out through observation, interviews, and literature studies. Researchers observed Early Childhood Education (ECE) institutions and the learning process that occurred in these institutions, as well as interviewed principals and early childhood teachers. The collected data were analyzed using the Miles & Huberman analysis model to identify the needs of a receptive and expressive language learning model for early childhood. The results of this study are expected to provide information on the needs of an effective and enjoyable receptive and expressive language learning model for early childhood. Based on the results of the research using the Research and Development (R&D) approach at the research and information gathering stage, it shows that early childhood requires an interesting and interactive language learning model to improve their receptive and expressive language skills. A multimedia-based block center approach to language learning can be an alternative to improve the receptive and expressive language skills of early childhood.

**Keywords:** learning model; receptive language; expressive language; block center; multimedia

## 1 Introduction

Language mastery in early childhood is an essential foundation for the overall developmental trajectory of a child's cognitive, social, and emotional aspects. The ability of early childhood (5-

6 years old) to understand (receptive) and use or express (expressive) language effectively can facilitate children in social interaction and is a primary prerequisite for academic success in further education [1]. Children who have strong language competence tend to be more socially adaptable, demonstrate better problem-solving skills, and have a solid foundation for learning to read and write. Language capacity becomes a bridge for children to understand the world around them and express their ideas, feelings, and needs to others. Therefore, receptive and expressive language abilities are one of the important aspects of early childhood development [2];[3].

However, many early childhood still experience difficulties in receptive language (understanding language) and expressive language (expressing language) [3]. This occurs because early childhood struggle with Indonesian language. Early childhood often use their mother language, especially Manggarai language, to communicate with others. In addition, the development of language learning that has been done is less than optimal because teachers are less varied in using approaches, strategies, models, and learning media that are relevant to the characteristics of early childhood. Teachers have not integrated relevant media (multimedia) to develop receptive and expressive language skills of early childhood [4]. Thus, the process of learning receptive and expressive language of early childhood is less than optimal, monotonous, boring or less interesting, less fostering retention, and less exploratory.

Therefore, the use of optimal and relevant approaches, strategies, media, and learning models to the development of early childhood is greatly needed to overcome the difficulties of early childhood in receptive and expressive language. Teachers need to stimulate the development of receptive and expressive language of early childhood with approaches, strategies, methods, and learning media that are relevant to the needs of children. In today's digital era, a learning approach that integrates multimedia (such as video, animation, and interactive sound) with a block center approach model—i.e., structured block play activities to stimulate creativity and cognition—can enhance the effectiveness of learning [5]. This learning model emphasizes play-based learning. Early childhood build block structures while listening to multimedia narratives. With this, early childhood receive stimulation to understand and express language holistically. This approach is in line with the Indonesian Early Childhood Education (ECE) curriculum, which promotes center activities to optimize multiple intelligences, including linguistics. This is because ECE today is faced with the challenge of preparing a generation that is able to navigate the complexities of the 21st century [6]. Language ability for early childhood is no longer just a basic skill, but a core competence that supports critical thinking, creativity, and collaboration.

The development of learning models in ECE that continues to evolve demands new learning models. Early childhood educators need to consistently develop and use the most effective approaches to stimulate various aspects of child development, including language. This is because conventional language learning models that rely on repetitive methods such as memorizing vocabulary or passively imitating speech are proven to be no longer sufficient to

address these challenges [7]. Children need more dynamic, contextual learning experiences that can spark their intrinsic curiosity. Conventional learning models that tend to be teacher-centered are very structured and less accommodating to the active and kinesthetic nature of child learners. This causes a crucial gap between learning practices in the field and children's real needs to learn through exploration, play, and meaningful interactions in a stimulus-rich environment.

Changes in the environment in which children grow and develop, especially exposure to digital technology from an early age, further emphasize the importance of developing this model. This also changes the way children interact with information and their surroundings. A relevant learning model must be able to utilize technology positively as a pedagogical tool, not just a source of distraction. If the education system cannot adapt to this reality, then there will be a gap between the way children learn in school and the way they experience the world outside of school, which can decrease motivation and learning effectiveness. The need for innovation also arises from a deeper understanding of child brain development. Neuroscience research shows that early childhood is a golden age where synaptic connections are formed at an extraordinary rate [8]; [9]. Rich learning experiences that involve various senses and occur in a positive social context are proven to optimize the development of brain circuits responsible for language function [10]. Therefore, learning models that rely solely on a single mode of information delivery (e.g., verbal only) lose the great potential to stimulate children's language development holistically. Ultimately, the need for new learning models aims to ensure equal opportunities for all children. Solid language skills in early childhood are a strong predictor of children's future academic and social success. Children who fall behind in language skills at this early stage are at risk of experiencing ongoing learning difficulties. The world of education has an ethical responsibility to develop innovative, effective, and accessible learning models for all, so as to close the achievement gap and provide the best foundation for every child to reach their maximum potential. [11].

Extensive literature review on language learning models for early childhood indicates several significant gaps that need to be addressed. There are several studies that tend to focus on developing one aspect of language separately, either receptive or expressive. Research examining the effectiveness of digital media, for example, often only measures improvements in vocabulary comprehension (receptive) without exploring its impact on children's ability to use the vocabulary in spontaneous conversations (expressive). This separation ignores the symbiotic nature of these two language domains, where good comprehension forms the basis for meaningful language production [12]; [13]. Another gap lies in the lack of integration between constructivist play-based learning approaches and the structured use of digital technology. On one hand, there is much research highlighting the benefits of play, such as block play, in developing social and cognitive skills. On the other hand, research on multimedia in ECE often positions technology as an isolated activity, for example, through individual use of tablet applications [14];[15]. Research that systematically develops and tests models integrating physical and social interaction in block play with pedagogically designed digital stimuli is still relatively rare.

Furthermore, existing learning models are often generic and lack attention to specific contexts, such as precise age targets (5-6 years) and unique needs during the transition phase to formal education. Research focusing on developing comprehensive models for this specific age group is still limited, despite this period being crucial for sentence structure maturation and narrative skills [3]. Many interventions designed for early childhood have too broad an age range (e.g., 3-6 years), whereas language development in 5-6 years old has unique characteristics that require more complex and targeted stimulation strategies.

Lastly, research using complete Research and Development (R&D) methodology to produce models that are not only theoretically valid but also practical and applicable in the field is still very limited. Many studies are experimental with short-term interventions, without going through iterative development cycles, expert validation, and field trials as mandated by the R&D approach [16]. As a result, many models produced are difficult to be sustainably applied by educators due to lack of practical guidance and consideration of classroom realities, thus hindering their implementation.

This gap will be addressed by developing a language learning model with a multimedia-based block center approach. The novelty of this proposed learning model lies in the innovative synthesis of two powerful pedagogical approaches that are rarely combined systematically, namely the block center approach and multimedia-based language learning. This model doesn't just place digital devices in the corner of the classroom, but integrates multimedia stimuli inherently into the block play activity flow. This integration creates a hybrid learning ecosystem, where the concrete sensorimotor experience of building blocks is enriched by dynamic and interactive digital content.

Therefore, this article answers the research question about the urgency of developing a receptive and expressive language learning model for early childhood (5-6 years old) using a multimedia-based block center approach. The results of the needs analysis in this research serve as the basis for developing a receptive and expressive language learning model for early childhood using a multimedia-based block center approach. An effective and enjoyable language learning model is essential for early childhood. The multimedia-based block center is one approach that can be used to develop the receptive and expressive language skills of early childhood.

## **2 Method**

This research uses R&D methodology at the Research and Information Collecting stage [16]. This approach is chosen to bridge the gap between theoretical research and educational practice. R&D aims to iteratively design, develop, and evaluate a functional product or model that can solve real-world problems in the field. The needs analysis stage is the initial focus of the R&D cycle, which is the core of this research, namely an in-depth investigation to understand

problems, identify gaps, and ensure the developed model meets the needs of early childhood and educators as target users.

### Research design

This research uses the Research and Development (R&D) approach in the first step, namely Research and Information Collecting [16],[17]. At this stage, the researcher analyzes the needs of a language learning model for receptive and expressive language skills in early childhood. This means that this development research will continue to the next stages or steps. The complete research design is shown in **Figure 1** below:

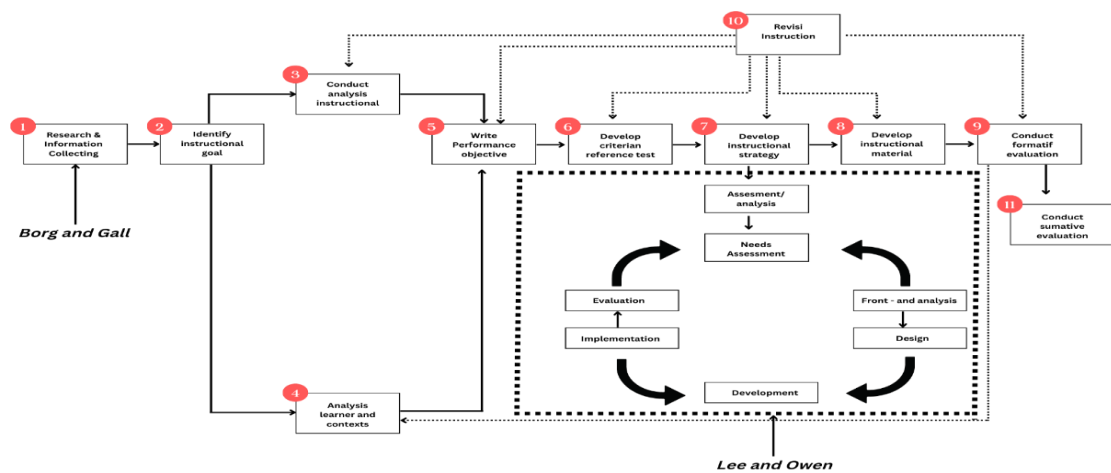


Fig. 1. Stages of Research and Development of Early Childhood Language Learning Model.

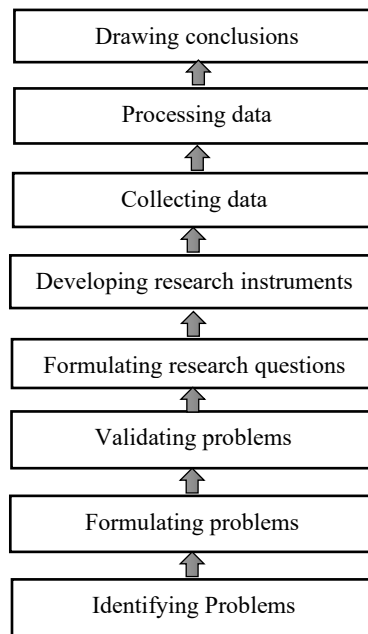
### Participants

The participants in this study were ECE principals and teachers, as well as early childhood in Langke Rembong District, Manggarai Regency, Flores, East Nusa Tenggara. The selection of participants in this study was conducted using systematic random sampling.

### Data Collection

Research data were collected using literature studies, observations, and interviews. These three data collection techniques were used in the needs analysis stage to obtain a comprehensive overview of the existing model and the needs for a receptive and expressive language learning model for early childhood. The first technique was a literature study, conducting a systematic review of research journals, textbooks, and policy documents relevant to early childhood language learning, block centers, and multimedia use. The second technique was classroom observation with non-participant observation in several ECE classes to directly observe language learning in progress. The focus of the observation was on teacher-student and student-student interactions, the use of media and teaching aids, the implementation of play centers (including block centers), and opportunities for language use that arose naturally. The observation provided rich contextual data on "what actually happens" in the classroom. The

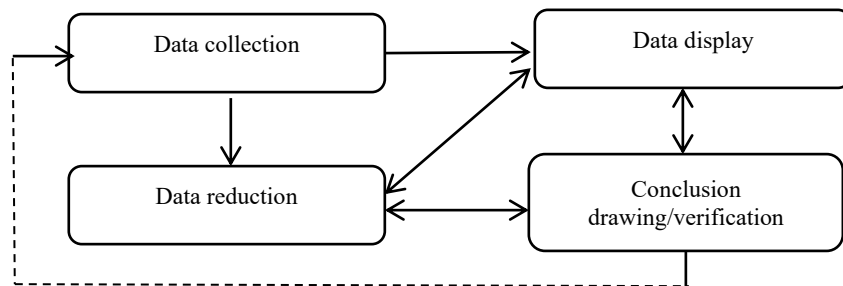
third technique was in-depth interviews conducted with educators (teachers and principals) to explore their perceptions, experiences, and needs. The interview questions were designed to explore the challenges they face, the strategies they use, their views on technology use, and their expectations of an ideal learning model. This research and information gathering were carried out in stages as shown in **Figure 2** below:



**Fig. 2.** Steps in Preliminary Research.

### **Data Analysis**

After the literature study data, observations, and interviews were collected, the next step was data analysis to identify the gap between the existing model and the needs of a language learning model for receptive and expressive language skills in early childhood. Qualitative data (interview transcripts and observation field notes) were analyzed using a thematic analysis approach as follows: (1) reading and familiarizing oneself with the data, (2) creating initial codes to mark interesting data segments, (3) searching for themes or patterns emerging from the codes, (4) reviewing and refining the themes, and (5) defining and naming the final themes. The collected interview and observation data were then processed qualitatively by adopting the Miles & Huberman analysis model with analysis steps [18], as shown in **Figure 3** below:

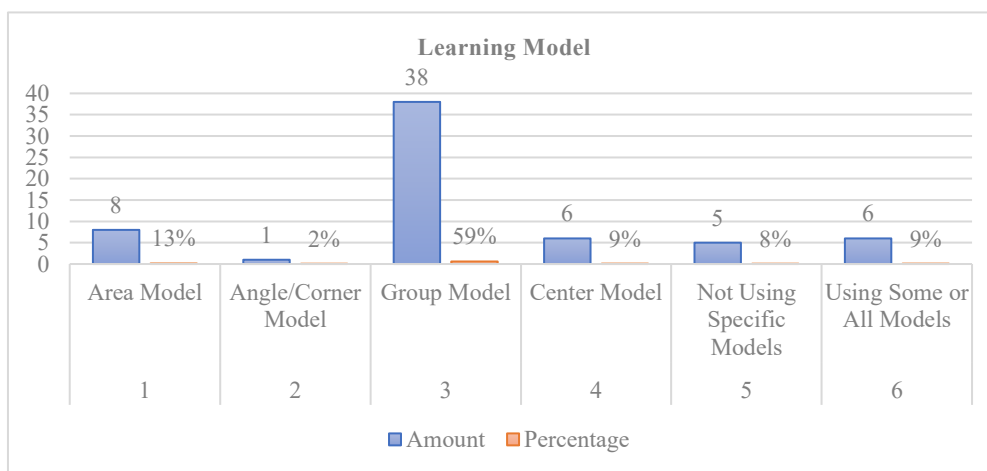


**Fig. 3.** Qualitative Data Analysis Process by Miles and Huberman.

### 3 Findings

Based on the results of research and initial data collection in the Research and Development (R&D) methodology through literature studies, interviews with kindergarten principals and teachers, observations of the learning process, and then analyzed qualitatively using the Miles & Huberman analysis model, researchers found that there were problems in the learning process to develop language skills in early childhood. Teachers are less varied in using learning models and media to develop language skills in early childhood. Researchers obtained data on learning models used in several ECE institutions from 64 early childhood teachers. The teachers used the same learning model during the learning process. There were 38 teachers (59%) who answered that the group learning model was used in the learning process of early childhood. This happens because this model is suitable for the abilities and conditions of ECE institutions in Manggarai. Eight teachers (13%) said that the area model was used in learning at school. Six teachers (9%) explained that the center model or a combination of several models was used in learning. Five teachers (8%) said that they did not use a specific model in the

learning process. One teacher (2%) said that the corner model was always used in the learning process. This data can be visualized as in **Diagram 1** below:



**Diagram 1.** Learning Models in ECE in Langke Rembong District

The data in this diagram illustrates that teachers who teach in ECE institutions use the same learning model and are less varied. The use of less varied learning models and media will affect the development of aspects of early childhood abilities, including their language skills. The learning process is less interactive, monotonous, and boring. Early childhood is less active or passive, has less retention and attention in the learning process because the learning process tends to be teacher-centered. Early childhood has a limited vocabulary, is less able to convey ideas, and has less developed ability to retell activities or play experiences that have been carried out. This means that early childhood experiences difficulties in understanding and expressing language. Early childhood aged 5-6 years, who are in the pre-operational thinking stage, need language stimulation through appropriate and relevant methods. Developing language skills for children aged 5-6 years is crucial because the stimulation provided at this stage will affect the child's abilities in the next developmental stage, including academic achievement. If early childhood experience language difficulties, it will negatively impact their subsequent education. As a result, a child will be unable to understand language and express themselves, such as difficulty communicating or understanding what teachers or peers convey, difficulty expressing thoughts, ideas, and desires verbally and non-verbally.

Language is an important instrument for humans to communicate messages, thoughts, information, desires, and feelings to others. Therefore, language stimulation needs to be done from an early age. Early childhood language skills, both receptive and expressive, influence the stimulation of other aspects of a child's development, including the ability to achieve academic learning competencies. A child with language difficulties feels inferior or afraid to interact with teachers and peers. This also causes early childhood to be unable to follow the learning process optimally. Teachers have used models, strategies, media, and learning materials in the learning

process to develop language skills in early childhood. However, teachers have not integrated various media (multimedia), learning materials, models, or other relevant learning strategies that suit the characteristics and developmental stages of early childhood. Therefore, teachers need models and strategies, learning media, and learning materials that are more interesting, retain attention, and motivate and stimulate the development of receptive and expressive language skills in early childhood.

Based on the research data and preliminary study information collection, it can be concluded as follows:

- 1 Teachers manage learning using group and classical models with a seating arrangement scheme of two students at one table, and have not used other learning models
- 2 Teachers use learning media prepared by the ECE institution, such as ECE teaching materials, videos, student worksheets, picture paper, lego, blocks, plastisin, origami paper, crayons, puzzles, coloring paint, pencils, local natural materials (fruits), and other conventional media, and design media that suits the theme or learning topic.
- 3 Teachers have not used integrated learning media (multimedia) in the learning process
- 4 Learning still takes place with a teacher-centered strategy, making it tend to be monologue by reading from prepared teaching materials, monotonous, and boring for students
- 5 Students are less able to receive and understand (receptive language) and less able to express language (expressive language) due to difficulties with Indonesian language
- 6 Students lack motivation and interest in the learning process, as evident in their silent attitude, not answering teacher's questions, playing alone, and not participating actively
- 7 The ECE institution does not yet have a competency map for developing language skills in early childhood

Based on these findings, the researcher concludes that the learning model used so far is less than optimal for developing receptive and expressive language skills in early childhood. This reality presents an opportunity to develop a receptive and expressive language learning model with a multimedia-based block center approach. This is also supported by the commitment of teachers at the ECE institution to accept any effective and enjoyable learning innovations for early childhood.

## **4 Discussion**

The results of this research and initial information gathering indicate that early childhood need an effective and enjoyable receptive and expressive language learning model. The multimedia-based block center is one alternative language learning model that can be used to develop early childhood language skills. Receptive language refers to a child's ability to understand language that is heard or read [19]. For early childhood, this domain is primarily related to understanding

spoken language. It is a complex cognitive process that involves several stages, from listening and distinguishing language sounds (phonemes), recognizing words, understanding word meaning (semantics), interpreting how words are combined in sentences to convey a message (syntax) [20]. The primary function of receptive language is to serve as the foundation for all learning processes. Before a child can speak, they must first understand the words spoken by people around them. This ability allows children to follow simple instructions like "Get the ball" to more complex ones like "Put the blue block on top of the yellow block". Language comprehension enables children to learn new concepts, from object names, colors, shapes, to abstract concepts like feelings and time. Understanding stories being read, for example, not only builds vocabulary but also stimulates imagination and narrative thinking skills [21].

In addition to its cognitive function, receptive language plays a crucial role in social and emotional development. Developmentally, receptive language skills typically develop faster than expressive language. A child may be able to point to a picture of a chicken when someone says the word "chicken" long before they can pronounce the word clearly. This gap between comprehension and production is a normal phenomenon in language acquisition. Therefore, stimulation rich in quality language input, through conversation, reading books, and singing, is vital for building the "mental dictionary" that will serve as the foundation for expressive language development later on [13].

Meanwhile, expressive language is the ability to use language, whether through words, gestures, or writing, to convey thoughts, feelings, and needs [22]. It is the productive aspect of language, where a child actively organizes ideas, selects appropriate vocabulary from their mental lexicon, and structures them according to grammatical rules to create a message that can be understood by others [23]. In early childhood, expressive language is primarily manifested in spoken language, ranging from babbling, first words, two-word phrases, to increasingly complex sentences. The fundamental function of expressive language is as a tool for communication and social interaction. Through language, children can request something like "Want milk", refuse like "No", or ask questions like "What's that?", and share experiences like "I saw a cat". This ability allows children to negotiate, cooperate, and resolve conflicts with their peers. In the context of play, expressive language becomes a medium for creating an imaginary world, assigning roles, and structuring storylines, all of which contribute to the development of high-level social and cognitive skills [24].

Theoretically, the development of this model makes a significant contribution to ECE literature by offering a new framework that integrates Vygotsky's constructivist theory with Mayer's multimedia learning design principles. Vygotsky's theory of the Zone of Proximal Development (ZPD) and the role of social interaction in learning form the basis for using the block center as a collaborative arena [25];[26]. On the other hand, cognitive principles in multimedia learning (e.g., multimedia principle, contiguity principle) provide scientific guidance for designing effective digital interventions that do not overload children's cognitive abilities [27]. This model

bridges these two theoretical domains, demonstrating how social interaction and technological scaffolding can work synergistically.

The development of this model also enriches the scientific discourse on embodied cognition in language learning. This theory posits that cognitive processes, including language, are deeply influenced by physical experiences and bodily interactions with the environment. By placing physical and spatial block-building activities at the core of language learning, this model provides empirical evidence on how motor actions and spatial perception can serve as a foundation for verbal concept development and expression [28]. This challenges the traditional view that often separates motor development from language development.

From a practical standpoint, this model holds great significance. It offers a concrete solution for educators facing challenges in stimulating children's language effectively and engagingly. With structured guidance, educators can design learning sessions that are not only enjoyable but also pedagogically rich [29]. This model offers an alternative to teaching methods dominated by teacher-centered verbal instruction, shifting towards a child-centered approach where children actively construct their knowledge and skills.

Furthermore, this model has practical implications for teacher professional development. Implementing this model requires teachers to act as skilled learning facilitators, able to observe, provide appropriate scaffolding, and integrate technology wisely. This encourages the improvement of teachers' pedagogical competence in the digital era. Additionally, for curriculum developers and policymakers, this model can inspire the design of richer, more interactive learning environments that meet the demands of the times, ultimately aiming to improve the overall quality of ECE.

Therefore, the need for a language learning model with a multimedia-based block center approach aims to address the challenges of developing early childhood language skills in schools, such as conventional language learning models, lack of integration of interactive and enjoyable learning, limited media and relevant learning tools, and educators' need for effective learning model guidance. In terms of creativity and artistic development, the block center provides unlimited opportunities for symbolic expression. The structures children build are three-dimensional representations of their ideas and imaginations. A child can create a fantasy world, replicate real buildings, or make abstract designs. This process fosters divergent thinking and cognitive flexibility. Since the block center can influence many aspects of development simultaneously, it becomes a rich and natural context for language development, as language becomes the tool that connects all these experiences [28].

The integration of multimedia in ECE has transformed from a mere innovation into a potentially powerful pedagogical component [30];[31]. Multimedia, in the context of education, refers to the use of various media to present information. Literally, "multi" means many, and "media" are communication tools [32];[33]. Therefore, multimedia is the integration of text, images,

graphics, audio (sound, music, narration), animation, and video into a single digital platform that is often interactive [34], [35]. For early childhood, effective multimedia is designed to capture attention, facilitate understanding, and encourage active participation, rather than passive consumption [27]. Therefore, it's essential to distinguish between multimedia that has pedagogical quality and those that are merely entertaining. Effective multimedia for early childhood should have clear learning objectives, an intuitive interface, be free from ads and distracting elements, and encourage critical thinking and creativity, rather than just quick and repetitive responses. The selection of the right type of multimedia should always be based on the learning objectives and the developmental characteristics of the target children [14]. Designing or selecting multimedia for early childhood aged 5-6 years requires a deep understanding of their cognitive development. Based on Richard Mayer's Cognitive Theory of Multimedia Learning [27], there are several principles that should be adapted for early childhood. The multimedia principle itself states that children learn better from words and pictures than from words alone. This is particularly relevant for early childhood who still heavily rely on visual cues to understand meaning [36]. Text should be minimized, while images, icons, and animations should be clear and support the audio narrative. Therefore, developed multimedia should meet the principles of coherence, personalization, meaningful interactivity, and content pacing. The pacing of content should also be controllable by the child, allowing them to progress at their own learning rhythm. Lastly, the feedback provided should be constructive and encouraging, focusing on effort rather than just right or wrong [15].

Multimedia can be a powerful tool to enhance language learning effectiveness if designed and used wisely. Multimedia offers the ability to present information through various modes - visual, auditory, and kinesthetic - simultaneously, which can accommodate diverse learning styles and reinforce concept understanding [37];[4]. Technology should be viewed as a tool that enriches the learning environment and triggers better interaction, rather than replacing human interaction. Thus, multimedia can be an effective partner or tool in the learning process, enhancing the quality of interaction between children and materials, peers, and teachers. Multimedia contributes to increasing children's motivation and interest in learning, integrating visual, audio, and kinesthetic elements that strengthen their receptive abilities. The key to integrating media like this is ensuring that technology always serves to enhance and enrich physical and social interactions, not replace them [14];[38].

This approach goes beyond using multimedia as a one-way instructional tool. In this model, multimedia serves as a narrative trigger, a source of visual information, and a scaffolding tool that sparks dialogue and collaboration among children. For example, a short video about bridge construction can be shown before a play session to stimulate ideas (receptive stimulation), and children are then encouraged to narrate the process of building a bridge replica using blocks (expressive stimulation). Ghofur and Nurhayati [24] demonstrate the effectiveness of story-based media by applying it in the context of meaningful physical construction. Additionally, this model has a dual focus balanced on receptive and expressive language stimulation simultaneously within a coherent activity flow. Activities at the block center naturally encourage

children to use language. Early childhood need to understand instructions (receptive), negotiate with peers (expressive), explain ideas (expressive), and listen to others' ideas (receptive). Multimedia integration is designed to strengthen both aspects. The audio-visual stimulus from multimedia enriches the language input received by children (receptive), while challenges or scenarios presented by multimedia encourage early childhood to produce more complex and structured language (expressive). Additionally, this model offers novelty in terms of structure and flexibility. It is not rigidly prescriptive, but rather provides a framework that can be adapted by educators according to the context and needs of the children. This framework includes clear stages, from orientation with multimedia stimulus, exploration and construction, to reflection and storytelling, while allowing space for teacher creativity and child spontaneity. Furthermore, this learning model addresses educators' need for structured yet non-restrictive guidance, an aspect often overlooked in learning model development.

Therefore, the main recommendation emerging from this needs analysis is that the developed model should be play-centered. Language learning should be seamlessly embedded into engaging gameplay driven by children's interests [39]. The "fun" element shouldn't be considered an add-on, but rather a fundamental design principle to maximize engagement and learning outcomes [40]. In-depth literature review provides strong theoretical support for the integration of block centers and multimedia. Research consistently shows that block play is significantly and positively correlated with the development of spatial skills, problem-solving, and social skills [41]. The literature review for this research identifies block centers as a highly rich context for natural language development, as children spontaneously use language for various communicative purposes [42].

The needs analysis conducted yielded several key points: First, there is an urgent need for a fundamentally play-centered learning model, where language learning is embedded in meaningful and intrinsically motivating activities. Second, the model should balance and integrate stimulation of both receptive and expressive language competencies, recognizing the symbiotic relationship between them. Third, there is a clear need from educators for practical, structured yet flexible guidance to help them translate child development theories into effective daily classroom practice. Fourth, the model should be contemporary, leveraging digital technology's potential wisely and pedagogically to enrich, not replace, rich human interactions.

Thus, the developed model explicitly positions the multimedia-based block center as one of the learning models for receptive and expressive language skills of early childhood. The block center serves as a superior constructivist learning environment because early childhood can learn about physical and spatial concepts and engage in complex social interactions. Moreover, the novelty and strength of this model lie in the planned and purposeful integration of multimedia, not merely adding technology as a decoration. In this model, multimedia functions as a conceptual trigger that builds background knowledge and sparks curiosity in early childhood. Multimedia acts as a visual scaffold that makes abstract concepts concrete and easily understood by early childhood. Additionally, multimedia serves as a catalyst for imagination in

early childhood, enriching symbolic play and eliciting more complex narratives. Multimedia synergistically strengthens and expands learning opportunities for early childhood in block play activities, creating a dynamic hybrid learning ecosystem. The preliminary study results found that conventional approaches in learning are less able to meet the learning needs of early childhood, which are active, social, and kinesthetic. The gap between ideal theory and practical field conditions, coupled with the evolution of the digital environment where early childhood grows, creates an urgency to develop a new learning model that is more relevant, effective, and engaging. Therefore, the framework of a learning model that synthesizes the strengths of the block center with the pedagogical potential of multimedia is designed to directly address the needs and gaps in the learning process of receptive and expressive language skills of early childhood (5-6 years old).

## 5 Conclusion

The results of research and data collection using the Research and Development (R&D) approach indicate that there are problems related to the receptive and expressive language skills of early childhood. This is because teachers tend to use less varied learning models and media to stimulate the language skills of early childhood. Therefore, early childhood needs effective and enjoyable receptive and expressive language learning models and media. The multimedia-based block center can be an alternative language learning model that can be used to develop the language skills of early childhood. This is because this learning model positions children not only learning about physical and spatial concepts but also engaging in complex social interactions. The need to plan, negotiate, and explain the construction process naturally creates an authentic and rich context for language practice. The block center provides a "stage" for children as the main actors, and language is the "script" that children create together in play activities. Therefore, this research recommends developing a receptive and expressive language learning model for early childhood using a multimedia-based block center approach.

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## References

- [1] V. Arutiunian *et al.*, "Expressive and Receptive Language in Russian Primary-School-Aged Children with Autism Spectrum Disorder," *Res. Dev. Disabil.*, vol. 117, no. July, p. 104042, 2021, doi: 10.1016/j.ridd.2021.104042.
- [2] R. W. Cheung, C. Hartley, and P. Monaghan, "Receptive and expressive language ability differentially support symbolic understanding over time: Picture comprehension in late talking and typically developing children," *J. Exp. Child Psychol.*, vol. 214, p. 105305, 2022, doi:

- 10.1016/j.jecp.2021.105305.
- [3] S. M. Vehkavuori, M. Kämäräinen, and S. Stolt, "Early receptive and expressive lexicons and language and pre-literacy skills at 5;0 years – A longitudinal study," *Early Hum. Dev.*, vol. 156, 2021, doi: 10.1016/j.earlhumdev.2021.105345.
- [4] S. T. Rahmat, S. Muslim, and S. Moch, "Multimedia-based Learning for Early Childhood Education," *Proc. 1st Int. Semin. Conf. Educ. Technol. 2022 (1st ISCET 2022) - Atl. Press Netherlands*, pp. 97–110, 2023, doi: 10.2991/978-94-6463-236-1.
- [5] T. Vagg, J. Y. Balta, A. Bolger, and M. Lone, "Multimedia in Education : What do the Students Think ?," *Heal. Prof. Educ.*, vol. 6, no. 3, pp. 325–333, 2020, doi: 10.1016/j.hpe.2020.04.011.
- [6] D. Rosmala, A. Nurul Hidayati, and F. Abdullah, "Early Language Development of a Child with Expressive Language Disorder: A Parents' Narration," *J-SHMIC J. English Acad.*, vol. 8, no. 1, pp. 86–96, 2021, doi: 10.25299/jshmic.2021.vol8(1).6305.
- [7] E. Astuti, Wuri; Yafie, "A Systematic Literature Review On Language Development Strategies In Early Childhood Education : Effective Pedagogical Approaches," *Mimb. Pendidik. J. Indones. untuk Kaji. Pendidik.*, vol. 10 (2), pp. 126–138, 2025, doi: <https://doi.org/10.17509/mimbardik.v10i2.82960>.
- [8] S. T. Lipscomb, B. Hatfield, E. Goka-dubose, H. Lewis, and P. A. Fisher, "Early Childhood Research Quarterly Impacts of Roots of Resilience professional development for early childhood teachers on Young children ' s protective factors," *Early Child. Res. Q.*, vol. 56, pp. 1–14, 2021, doi: 10.1016/j.ecresq.2021.02.002.
- [9] M. A. Barnett, K. W. Paschall, A. M. Mastergeorge, C. A. Cutshaw, and S. M. Warren, "Early Childhood Research Quarterly Influences of Parent Engagement in Early Childhood Education Centers and the Home on Kindergarten School Readiness," *Early Child. Res. Q.*, vol. 53, pp. 260–273, 2020, doi: 10.1016/j.ecresq.2020.05.005.
- [10] T. K. Hensch, *Critical Periods in Cortical Development*. Elsevier Inc., 2018. doi: 10.1016/B978-0-12-804036-2.00006-6.
- [11] N. D. Choiriyah, Ilza Mayuni, "The Effectiveness of Multimedia Learning for Distance Education Toward Early Childhood Critical Thinking During the COVID-19 Pandemic," *Eur. J. Educ. Res.*, vol. 10, no. 3, pp. 1075–1088, 2022.
- [12] P. Cheung, Rachael W; Hartley, Calum; Monaghan, "Receptive and Expressive Language Ability Differentially Support Symbolic Understanding Over Time: Picture Comprehension in Late Talking and Typically Developing Children," *J. Exp. Child Psychol.*, vol. 214, 10530, pp. 1–49, 2021, doi: <https://doi.org/10.1016/j.jecp.2021.105305>.
- [13] D. Maria and Z. M. C. M. P. L. Fernandes, "Child Development : Assessment of Receptive and Expressive Language in Preschoolers," *Estud. Psicol. - Psychological Stud.*, vol. 41, no. e210045, pp. 1–12, 2024, doi: <https://doi.org/10.1590/1982-0275202441e210045>.
- [14] M. Fan, A. N. Antle, and J. L. Warren, "Augmented Reality for Early Language Learning : A Systematic Review of Augmented Reality Application Design , Instructional Strategies , and Evaluation Outcomes," *J. Educ. Comput. Res.*, no. 1, pp. 1–42, 2020, doi: 10.1177/0735633120927489.
- [15] A. Mamdouh, M. Abdel, and R. Barakat, "The Effects of Digital Drama-Based Instruction on Developing Receptive and Expressive Language among Kindergarten Children," *Int. J. Instr.*, vol. 16, no. 1, pp. 103–118, 2023, doi: <https://doi.org/10.29333/iji.2023.1616a>.
- [16] M. D. Gall, J. P. Gall, and W. R. Borg, "Educational Research\_ An Introduction (7th Edition)," *New York Pearson Educ.*, pp. 1–578, 2003.
- [17] Dick Walter; Carey Lou; Carey O. James, "The Systematic Design of The Systematic Instruction, Eighth Edition," *United State America Pearson Educ. Inc.*, 2015.

- [18] S. Miles, Matthew A. Huberman A. Michael. Johnny, *Qualitative Data Analysis, A Methods Sourcebook, Edition 3*. 2014.
- [19] L. J. McIntyre, L. ann M. Hellsten, J. Bidonde, C. Boden, and C. Doi, "Receptive and Expressive English Language Assessments Used for Young Children: A Scoping Review Protocol," *Univ. Saskatchewan, Canada Dep. Educ. Psychol. Spec. Educ.*, vol. 6, no. 1, pp. 1–7, 2017, doi: 10.1186/s13643-017-0471-1.
- [20] E. Hoff, "Language Development - Fourth Edition," *Wadsworth, Cengage Learn.*, 2009.
- [21] L. N. Auliyani, "Digital Media To Improve The Receptional Language Skill Of Children Aged 4 - 5 Years At Nur Nabawiy Kindergarten, Pasuruan City," *J. Teach. Educ.*, vol. 2, no. (2), pp. 1–10, 2023, doi: <https://doi.org/10.31327/jte.v2i2.2089>.
- [22] H. D'Souza, A. Lathan, A. Karmiloff-Smith, and D. Mareschal, "Down syndrome and parental depression: A double hit on early expressive language development," *Res. Dev. Disabil.*, vol. 100, no. March, p. 103613, 2020, doi: 10.1016/j.ridd.2020.103613.
- [23] J. B. Gleason and N. B. Ratner, "The Development of Language - Tenth Edition," *Plur. Publ. Inc.*, 2024.
- [24] E. H. Ghofur and S. Nurhayati, "Multimedia-Based Storytelling Learning Media Effectivity For Early Childhood 's Expressive Language Skill Development," vol. 7, no. 6, pp. 6677–6686, 2023, doi: 10.31004/obsesi.v7i6.4682.
- [25] S.K. Manggal; Shubhra Mangal, "Learning and Teaching," *Delhi PHI Learn. Priv. Ltd.*, 2019.
- [26] B.R. Hergenhahn; Matthew H. Olson, *An Introduction to Theories of Learning, Sixth Edition*. 2001. doi: 10.4324/9781003014447.
- [27] R. E. Mayer, "Multimedia Learning. Third Edition," *New York Cambridge Univ. Press*, 2021.
- [28] L. E. Cohen and J. Emmons, "Block play: spatial language with preschool and school-aged children," *Early Child Dev. Care*, vol. 187, no. 5–6, pp. 967–977, 2017, doi: 10.1080/03004430.2016.1223064.
- [29] S. Indrawati; Purnama, "Needs Analysis for Development of Learning Multimedia to Facilitate Introduction of English in Early Childhood," *JCD J. Child. Dev.*, vol. 4, no. 2, pp. 489–498, 2024, doi: <https://doi.org/10.25217/jcd.v4i2.5166>.
- [30] R. A. Dore and J. M. Dynia, "Technology and Media Use in Preschool Classrooms: Prevalence, Purposes, and Contexts," *Front. Educ.*, vol. 5, no. November, pp. 1–14, 2020, doi: 10.3389/educ.2020.600305.
- [31] R. Kurnia, Mahdum, Azriyenni, and P. S. Pernantah, "Development of Learning Media for Early Childhood Based on the Mechatronics System," *Proc. 2nd Int. Conf. Innov. Educ.*, vol. 504, no. ICoIE, pp. 211–216, 2020, doi: 10.2991/assehr.k.201209.221.
- [32] Commonwealth Educational Media Centre for Asia (CEMCA), "Educational Multimedia - A Handbook for Teacher-Developers," *New Delhi Commonw. Learn.*, no. March, pp. 1–65, 2003.
- [33] W. W. L. D. L. Owens, "Multimedia - Based Instructional Design : Computer-Based Training, Web-Based Training, Distance Broadcast Training, Performance-Based Solutions (Second Edition)," *San Fransisco Pfeiffer*, 2004.
- [34] M. D. Abdulrahaman *et al.*, "Multimedia tools in the teaching and learning processes: A systematic review," *Heliyon*, vol. 6, no. 11, p. e05312, 2020, doi: 10.1016/j.heliyon.2020.e05312.
- [35] R. Rachmadtullah, M. S. Zulela, and M. S. Sumantri, "Development of computer-based interactive multimedia: Study on learning in elementary education," *Int. J. Eng. Technol.*, vol. 7, no. 4, pp. 2035–2038, 2018, doi: 10.14419/ijet.v7i4.16384.
- [36] E. H. Ghofur and S. Nurhayati, "Multimedia-Based Learning Media Development to Improve Early Childhood Expressive Language Ability," *J. Obs. J. Pendidik. Anak Usia Dini*, vol. 7, no. 2, pp. 2373–2382, 2023, doi: 10.31004/obsesi.v7i2.4416.

- [37] Z. Zulfitriah, "The Use of Multimedia Technology in Early Childhood Literacy," in *Proceeding of The International Conference of Early Childhood Education (ICECE 2019)*, 2020, pp. 76–79. doi: 10.2991/assehr.k.200715.015.
- [38] H. Munawaroh, A. Eka, Y. Widiyani, and R. Muntaqo, "Pengembangan Multimedia Interaktif Tema Alam Semesta pada Anak Usia 4-6 Tahun," *J. Obs. J. Pendidik. Anak Usia Dini*, vol. 5, no. 2, pp. 1164–1172, 2021, doi: 10.31004/obsesi.v5i2.619.
- [39] M. Desfita, "Learning , Listening , and Reading Based on Child Worksheets Interactive Multimedia in Early Childhood of 5 – 6 Years," *Proceeding Int. Conf. Early Child. Educ. (ICECE 2019)*, vol. 405, no. Iclles 2019, pp. 90–95, 2020.
- [40] N. Veronica, "The Implementation on Role Play in Early Children Mathematics Skills," *Atl. Press*, pp. 364–368, 2023, doi: 10.2991/978-2-38476-022-0.
- [41] V. Malele and M. E. Ramaboka, "The Design Thinking Approach to students STEAM projects," *Procedia CIRP*, vol. 91, no. i, pp. 230–236, 2020, doi: 10.1016/j.procir.2020.03.100.
- [42] D. S. Weisberg, J. M. Zosh, and K. Hirsh-pasek, "Talking It Up : Play, Language Development, and the Role of Adult Support," *Am. J. Play*, vol. 6, no. 1, pp. 39–54, 2013.