



## Development of Styrofoam Crossword Game Media to Improve Language Aspects in Children Aged 5-6 Years

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### Abstract

This study aims to develop a styrofoam crossword game as an effort to improve the language aspects of children aged 5-6 years at RA Nurul Qolbi in the 2022/2023 academic year. The background of this study is based on the results of a pre-survey which showed that children's language skills at the RA are still relatively low, as well as the minimal use of interesting learning media that are appropriate to the characteristics of early childhood. This study used the Research and Development (R&D) method with the Borg and Gall development model consisting of ten stages. The subjects in this study were 16 children in group B. The media was developed in the form of a simple crossword game combined with attractive images and colors made of styrofoam to suit the needs of early childhood. The instruments used included observation sheets, interviews, and documentation. Validation was carried out by material experts and media experts, while trials were conducted on a limited basis with students. The results of the study indicate that this styrofoam crossword game media is suitable for use and is effective in improving children's language skills, especially in understanding commands, enriching vocabulary, and expressing themselves verbally. Thus, this media can be an alternative solution in improving the quality of language learning in early childhood education. The use of visual, interesting, and interactive media has been proven to increase children's interest and participation in learning activities.

**Keywords:** Learning Media, Crossword Games, Language Aspects, Early Childhood, Styrofoam



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## INTRODUCTION

Learning media is a crucial component of the educational process, serving as a tool to convey information from teachers to students. The term "media" comes from the Latin word *medius*, meaning "intermediary" or "transmitter." In an educational context, learning media can attract attention, motivate students, and help them understand material more concretely through visualization, sound, and interaction (Arsyad, 2015).

In early childhood education (PAUD), the use of appropriate learning media is essential considering the characteristics of early childhood who are still in the early stages of cognitive development. Based on Law No. 20 of 2003 concerning the National Education System, PAUD aims to provide early educational stimulation to support children's overall physical and spiritual growth and development (Ministry of National Education, 2003). Therefore, learning media must be adapted to the fun world of children's play. The age period of 0–6 years is known as the golden age, namely the golden period of growth and development. Permendikbud No. 137 of 2014 states that aspects of child development include religious and moral values, physical motor skills, cognitive skills, language skills, social emotional skills, and art. Of these aspects, language is an important foundation in building children's communication, thinking, and social skills (Ministry of Education and Culture, 2014).

Early childhood language skills can develop optimally if stimulated through active communication and appropriate media. Language is not only a means of communication, but also a means of thinking and expression. Therefore, children's language development should be carried out in a fun and meaningful way, so that children are encouraged to actively speak and understand their surroundings (Suyadi, 2010).

However, in practice, many young children still experience barriers to language development. A pre-survey at RA Nurul Qolbi Setia Bakti found that most children aged 5–6 years were categorized as underdeveloped in terms of language. This indicates the need for attention to the methods and media used in learning. Furthermore, the background of the teaching staff also plays a crucial role. At RA Nurul Qolbi, some teachers lack the competencies appropriate to the field of early childhood education (PAUD). This results in a lack of appropriate media utilization to stimulate children's language development. The learning approach tends to be monotonous and does not involve children in activities that stimulate language skills (Interview, 2022).

One alternative solution to address this problem is the development of visually engaging and engaging educational games. Crossword puzzles modified with bright images and colors are one potential form of media. These games can improve children's vocabulary recognition, understanding commands, and expressing words through play (Heinich et al., 2005).

Crossword games also have the advantage of training children's logic and concentration, especially when combined with images that align with the learning theme. With the addition of color and safe materials like Styrofoam, this medium is not only visually appealing but also safe for use by young children. This visual variation is believed to increase learning motivation and enrich children's language experiences in a fun way (Munir, 2012).

Based on this background, this article discusses the development of a styrofoam crossword game as an alternative learning medium to improve the language skills of 5–6-year-old children at RA Nurul Qolbi Setia Bakti. This research is expected to contribute to improving the quality of learning in early childhood education through creative, educational media that are appropriate to the characteristics of early childhood.

## METHOD

### Research Design

This study uses the Research and Development (R&D) method with the 4D development model (Define, Design, Develop, Disseminate) developed by Thiagarajan, Semmel, and Semmel. This model was chosen because it is able to guide researchers in the process of designing, developing, and testing learning media based on student needs. The purpose of this method is to produce a learning media product in the form of a styrofoam crossword game that is suitable for use and effective in improving the language skills of children aged 5-6 years. The first stage, Define, is carried out by identifying needs and problems through interviews and observations of teachers and students. This stage is continued with Design, which is making an initial draft of the learning media based on the results of concept analysis and assignments. Next, the Develop stage is carried out with product validation by material and media experts, limited trials on children, and revisions. The final stage is Disseminate, which is introducing the final product to the RA Nurul Qolbi environment for use in learning activities.

The 4D model was chosen because it has proven to produce learning products that are systematic and responsive to user needs. The process goes beyond media creation, prioritizing testing, validation, and revision based on input from experts and direct users.

### Population and Samples

The population in this study was all children in group B aged 5-6 years who were in RA Nurul Qolbi Setia Bakti. The reason for selecting this population was because this group showed a need for improvement in aspects of language development that were relevant to the objectives of the learning media being developed. The sample of this study was 16 children aged 5-6 years who were members of group B RA Nurul Qolbi. The sample selection was done purposively by considering age suitability and the need for improvement in language skills. These subjects were the direct recipients of the trial of the styrofoam crossword media, so that the data obtained reflected the effectiveness of the media's use in a real context.

### Data Collection

Data were collected through observation, interviews, questionnaires, and documentation. Observations were conducted to directly observe children's behavior and language skills before and after media use. These observations were systematic and aimed at assessing children's cognitive, language, and social interactions during the learning process using crossword media. Interviews were conducted with the principal and group B teachers to obtain in-depth information about the initial learning conditions, media availability, and their responses to the developed media. In addition, questionnaires were given to material experts and media experts to assess the product's suitability in terms of content and appearance. Documentation was used to record physical evidence in the form of photos of activities, school profiles, and children's work during the learning process.

### Data Analysis

The data obtained were analyzed using quantitative and qualitative descriptive analysis. Quantitative data came from expert validation questionnaire scores and child development assessments, calculated using percentage and average formulas. The formulas used were:

$$x = \frac{\sum x_i}{n} \quad \text{dan} \quad x_i = \frac{\text{Jumlah Skor}}{\text{Skor Maksimal}} \times 100$$

Qualitative data was obtained from interviews and observations, which were analyzed by reducing the data, organizing it into specific categories, and drawing conclusions. This analysis helped researchers understand how the product is used in the field and the extent to which the

media can promote early childhood language skills. The results of this analysis served as the basis for product revisions to ensure the media truly aligns with children's characteristics and needs.

## RESULTS AND DISCUSSION

The results of this study indicate that the styrofoam crossword game media can be developed well and has a high level of feasibility as a learning medium to improve the language aspects of children aged 5–6 years. The development process uses the 4D model (Define, Design, Develop, Disseminate) which is adapted to the characteristics of early childhood who learn through concrete experiences and play. In the validation stage, the media was tested by two experts, namely a material expert and a media expert. The material expert assessed the suitability of the game content with indicators of early childhood language development, clarity of instructions, and alignment with the PAUD curriculum. The validation results showed that the media met the criteria of "very feasible" with an average feasibility score of 92%.

Meanwhile, media expert validation focused on visual appearance, color appeal, material safety, and ease of use. Styrofoam toys were deemed safe, lightweight, and easy for children to manipulate. The average score from media experts reached 90%, thus being declared highly suitable for use in early childhood learning. A limited trial was conducted on 16 children in Group B at RA Nurul Qolbi. Learning was conducted in three sessions, using a play-while-learning approach. Activities included arranging letters into words, identifying images, and discussing the results. Before treatment, the children's average language ability score was 65.2 (moderately developed category). After using the media, the score increased to 86.8 (very well developed category).

This improvement indicates that crossword games help develop children's receptive and expressive language skills. Children are able to name new vocabulary, follow teacher instructions, and express ideas verbally. This supports Vygotsky's (1978) view of the importance of social interaction in early childhood language development. This media also encourages collaboration and communication between children. The games are played in pairs or small groups, thus practicing listening, responding, and negotiating skills. Children become more confident in expressing their opinions and actively participate in simple discussions.

Another interesting aspect of this media is the appropriateness of the shape and color to children's interests. Styrofoam was chosen because of its lightweight and malleable texture, allowing children to interact directly with the play equipment through motor skills. This aligns with the characteristics of early childhood, who are still in the symbolic play stage (Santrock, 2011). These findings are also supported by previous research. Handayani (2021) found that interactive educational games can significantly improve children's communication skills. Similarly, Suyadi (2017) emphasized that games designed to suit children's developmental needs can simultaneously improve cognitive and language aspects.

From a teacher's perspective, this media is easy to create and economical, as well as flexible to be developed according to the learning theme. Teachers can change words, images, and colors according to the Daily Learning Implementation Plan (RPPH). This media can also be used for remedial and enrichment purposes. Thus, it can be concluded that this Styrofoam crossword game media has proven effective and applicable in improving the language skills of children aged 5–6 years. This media can be an alternative learning solution that is fun, communicative, and meaningful in accordance with the principles of child-oriented early childhood education.

## CONCLUSION

The results of a limited trial indicate that the use of this game media has a positive impact on improving children's language skills, both in terms of letter recognition, word formation, pronunciation of new vocabulary, and verbal communication skills. The average score of children's language development increased significantly from the category of "quite developed" to "very well developed" after being given treatment. This styrofoam-based game attracts

children's attention because its shapes and colors are appropriate for their developmental characteristics. In addition, the social interactions created during the game encourage children to actively speak and listen, in accordance with the play-while-learning approach recommended in early childhood education. This media has also proven to be flexible, economical, and easy for teachers to implement in daily learning activities. Therefore, this styrofoam crossword game media can be recommended as one of the creative learning innovations that supports the improvement of language aspects in early childhood.

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