

## Development Of Bakastive Games In Stimulating The Concentration Ability Of Adhd Children In Raudhatul Athfal, Penjaringan Utara District

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### ABSTRACT

This study aims to develop Bakastif game products at the Raudhatul Athfal institution in Penjaringan District, North Jakarta in stimulating concentration skills for ADHD children. This study uses the ADDIE (Analysis, Design, Development, Implementation, and Evaluation) development model. The research location was at Raudhatul Athfal, North Jakarta, involving four ADHD students from three Raudhatul Anfhfal institutions as samples in the study. Data were obtained through interviews, observations, expert validation tests, feasibility and effectiveness tests in the field. The results of the study showed that teachers faced limitations in utilizing APE due to the lack of facilities that were in accordance with the conditions, needs and characteristics of ADHD children. The validation results by PAUD experts, learning media experts, and curriculum experts showed that this Bakastif game tool was feasible to use, with an average score of 84% (Very Feasible category). Implementation in three RAs showed that the Bakastif game tool was effective to use, with an effective standard of "Feasible" as a children's educational game.

**Keywords:** *Fun Games, Concentration Skills, ADHD Children*

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### INTRODUCTION

Early childhood refers to the stage of growth and development up to the age of six years. During childhood, the development process enters what is known as the golden age, a crucial period for enhancing the human brain system, as the brain's ability to absorb information is exceptionally fast (Musfiroh, 2017). In this phase of development, children's behavior is easily recognized through unique characteristics: they are spontaneous, less cautious, and energetic. Children are naturally curious about the world and frequently ask questions or retell the events they've experienced. This presents a challenge for parents and teachers to foster development and creativity, including through educational games that align with children's stimulation and growth.

According to Jeffree, McConkey, and Hewson (cited in Sujiono, 2016), early childhood behavior can be observed through how children play. Children actively and energetically take on the role of the main player, engaging in play voluntarily and without coercion to gain new experiences and information.

For young children, playing is akin to working, where the reward is new knowledge and skills gained through fun and free activities (S. N. Hayati & Khamim Zarkasih Putro, 2021). Children learn about the universe by exploring through play. Parents and teachers should nurture this curiosity through education that matches the child's interests and needs, supporting intellectual ability and skill in finding solutions. This is supported by Jean Piaget's cognitive development theory (Marinda, 2020), which states that cognitive ability develops through learning from experience and interpreting surrounding objects to solve problems. In line with this theory, play is an ideal educational stimulation for children.

ADHD (Attention Deficit Hyperactivity Disorder) is a behavioral disorder characterized by impulsiveness, hyperactivity, and inattention (American Psychiatric Association, 2000; Rofiah et al., 2019). According to the DSM-V, ADHD involves difficulty maintaining attention due to inattention. This is caused by impulsivity—where the child acts before thinking—and hyperactivity, which leads to excessive movement. These behaviors often occur without a clearly identifiable cause and are classified under inattention disorders.

Paternotte and Buitelaar (2022) explain ADHD symptoms include difficulty focusing in school and during tasks, hyperactive behavior, and impulsivity. Children with ADHD often display consistent and frequent behavioral issues. Skinner (in Abdul Latif et al., 2024) similarly describes ADHD as a behavior pattern involving restlessness, inattention, and impulsiveness. These experts agree that ADHD involves hyperactivity (not staying still), inattention (lack of focus), and impulsiveness (mood swings).

Santrock offers a similar view, although he does not specifically associate mood changes with impulsivity. He defines ADHD as a disorder characterized by short attention spans, distractibility, and high levels of physical activity. According to Santrock, children with ADHD struggle to focus on tasks due to an inability to maintain attention (Alfisah Utami & Pramudita Fadilla, 2023).

Concentration is the child's effort to understand learning material or solve problems. With better concentration, a child can more accurately analyze problems and find wise solutions. The metacognitive development theory by Flavell and Brown (in Widiana, 2023) explains that children regulate themselves while solving problems. This theory supports the idea that stimulating a child's self-awareness and control is key to improving their ability to concentrate, especially for children with ADHD. Addressing concentration issues in ADHD children may involve developing individual learning programs, supported by the school environment and cooperation from all stakeholders (Aviandini et al., 2021).

Play-based education aims to stimulate intellectual, psychomotor, and mental development in young children through enjoyable methods. Teachers should design engaging lessons that attract children's interest. They can support creativity in play by using educational materials made from readily available natural or recycled items. Using recycled

materials allows for spontaneous, free, comfortable, and enjoyable play. Research shows that early childhood learning can improve across all areas with educational play media that is recognizable, engaging, and tailored to the child's needs and conditions (Adawiyah et al., 2023).

Thus, children's learning potential can be enhanced through media that is easy to play with. Each child's play behavior may differ due to their development stage; some children are categorized as having disabilities such as Autism Spectrum Disorder (ASD), Intellectual Disability, Speech Delay, and ADHD.

The development of educational play media for children with ADHD in this study is based on Lev Vygotsky's theory, which views educational play as a tool to assist children's thinking. Vygotsky emphasized that knowledge is not simply transferred from others but constructed by the child through experience (Rahayu, 2021). He believed that learning cannot be forced because children are active learners with psychological structures that help regulate their own behavior (Bertens, 2016).

This theory is supported by Herbert Spencer, who stated that play is a release of excess energy, allowing children to act freely without stress or trauma (Mulyati & Suryani, 2023). Well-planned and integrated play media can positively impact cognitive development. Parental and teacher involvement is crucial in introducing types of educational tools. When play is enjoyable and pressure-free, it stimulates children's thinking. Sigmund Freud (in Bertens, 2016) stated that play allows children to re-enact traumatic events as a way to process and find satisfaction through repeated experiences—stimulating sensory and cognitive awareness.

Play media made from recycled materials can be used as tools to stimulate children's growth and development. Oktari stated that effective learning media often comes from the child's surrounding environment (Andriani & Rakimahwati, 2023). Recycled materials are appropriate for teaching because they are tangible, familiar, and can connect past and present experiences. According to Stone (in Rahayu, 2021), the functionality of play can be provided through repurposed items such as paper bags filled with old toys or other objects.

Using familiar recycled materials helps children gain direct learning experiences. Such materials aid understanding and support the learning process. Fitriya (2022) emphasizes that creative educational tools made from recycled items help teachers turn abstract concepts into ones that children can easily grasp and remember.

Therefore, play media made from recycled materials is an innovative solution for teachers at Raudhatul Anfhal, especially in addressing current issues. The educational game tool (APE) developed in this study aims to stimulate concentration in children with ADHD. This product is designed to help children with special needs, particularly ADHD, practice problem-solving and extend their attention spans. The game media will be created using materials that are easy to find in the surrounding environment, making it more affordable and accessible.

Based on the above problems, the researcher is motivated to conduct this study as a contribution to early childhood education with the title: "Development of Bakastif Game

to Stimulate the Concentration Ability of Children with Attention Deficit Hyperactivity Disorder at Raudhatul Anfhal, Penjaringan District, North Jakarta.”

## **METHOD**

The research method used is a type of research and development (R&D) employing the ADDIE model development cycle. According to Mills & Gay in Nelson Ang (2018), development research is a process of investigating learning needs to be developed in response to a needs analysis. Development research is an educational development model that produces newly designed products and procedures that have gone through a systematic field testing process, evaluated, and improved until they meet the criteria of feasibility, effectiveness, and quality (Sugiyono, 2019).

In the field of education, this type of research is conducted as product development that can be effectively used in schools. The purpose of this research method is to investigate learning needs by developing products through feasibility and effectiveness testing. Development research is a method that produces specific products through feasibility and effectiveness trials (Sugiyono, 2019).

The data analysis used in this study follows a mixed-method research design, specifically the convergent parallel design, combining both qualitative and quantitative approaches. Mixed-method research aims to enhance existing products to make them more relevant and appropriate for addressing problems occurring in a particular research location or educational institution, in the form of an innovative development product (Sugiyono, 2019).

The qualitative approach was carried out by the researcher through interviews and field notes, which served to fulfill the data needs during the needs analysis stage. Interviews and field notes were conducted in a real and comprehensive manner. After conducting feasibility tests involving expert validators (expert judgement), analyzing interview results, field notes, and product development trials, a quantitative approach was then conducted to test the effectiveness of the product through a pre-experimental model: one group pretest-posttest. This was done to accurately verify the effectiveness of using the Bakastif educational toy in a large group setting.

The ADDIE model used in this development research serves as an instructional system design procedure (Sugiyono, 2019). The model is visually constructed as a reference to demonstrate the process to stakeholders by depicting the procedure followed by the researcher, so that it results in an instructional guideline that users can understand. The implementation procedure is based on five stages:

1. Analyze
2. Design
3. Develop
4. Implement
5. Evaluate

## A. Population and Sampling Technique

### 1. Research Population

The research population is the generalization area that includes objects or subjects with specific characteristics and qualities to be studied as defined by the researcher (Sugiyono, 2014). The population in this study consists of children with ADHD at Raudhatul Afthal schools in Penjaringan District, North Jakarta.

### 2. Sample

The research sample is part of the population that possesses the same quantity and characteristics, used to draw representative conclusions (Sugiyono, 2014). The sample in this study includes children with ADHD from three Raudhatul Afthal institutions in Penjaringan District, North Jakarta, specifically those showing inattention behavior disorders.

## B. Development Procedure

The research design refers to the goals of development research, namely to identify needs, develop, and validate a product. Therefore, this study applies the ADDIE model by Robert Maribe Branch as the development research design. The ADDIE stages and their implementation by the researcher are illustrated in the following diagram:

**ADDIE Procedure Table**

	<i>Analyze</i>	<i>Design</i>	<i>Develop</i>	<i>Implement</i>	<i>Evaluate</i>
<b>Concept</b>	Identify the probable causes for a performance gap	Verify the desired performances and appropriate testing methods	Generate and validate the learning resources	Prepare the learning environment and engage the students	Assess the quality of the instructional products and processes, both before and after implementation
<b>Common Procedures</b>	<ol style="list-style-type: none"> <li>1. Validate the performance gap</li> <li>2. Determine instructional goals</li> <li>3. Confirm the intended audience</li> <li>4. Identify required resources</li> <li>5. Determine potential delivery systems (including cost estimate)</li> <li>6. Compose a project management plan</li> </ol>	<ol style="list-style-type: none"> <li>7. Conduct a task inventory</li> <li>8. Compose performance objectives</li> <li>9. Generate testing strategies</li> <li>10. Calculate return on investment</li> </ol>	<ol style="list-style-type: none"> <li>11. Generate content</li> <li>12. Select or develop supporting media</li> <li>13. Develop guidance for the student</li> <li>14. Develop guidance for the teacher</li> <li>15. Conduct formative revisions</li> <li>16. Conduct a Pilot Test</li> </ol>	<ol style="list-style-type: none"> <li>17. Prepare the teacher</li> <li>18. Prepare the student</li> </ol>	<ol style="list-style-type: none"> <li>19. Determine evaluation criteria</li> <li>20. Select evaluation tools</li> <li>21. Conduct evaluations</li> </ol>
	<i>Analysis Summary</i>	<i>Design Brief</i>	<i>Learning Resources</i>	<i>Implementation Strategy</i>	<i>Evaluation Plan</i>

## C. Research Instruments

This study uses several instruments to collect the necessary data for developing concentration skills in children with ADHD. The instruments used include a needs analysis instrument, expert validation instrument, and an instrument to assess the achievements of children with ADHD while using the Bakastif play product. These three instruments were utilized to ensure the feasibility of the Bakastif play product and to measure its effectiveness.

The research instruments used in this study are: Needs analysis instruments, gathered through observation and interviews at the following educational institutions:

Raudhatul Anfhal Darul Hikmah, Raudhatul Anfhal Darul Hikmah 5, and Raudhatul Anfhal AL Binayah in Penjaringan District, North Jakarta.

#### D. Data Analysis Techniques

##### 1) Qualitative Data Analysis

The qualitative data, which comes from observations and interviews, is processed through several stages (Rijali, 2018):

###### a) Data Reduction

Data reduction is the process of selecting, focusing, simplifying, abstracting, and transforming raw data obtained from field notes. In this step, the data gathered for the development of the Bakastif game will be summarized according to the five ADDIE stages:

- a. Analyze,
- b. Design,
- c. Develop,
- d. Implement,
- e. Evaluate.

###### b) Data Presentation

Data presentation involves organizing a collection of information in a way that allows for conclusions to be drawn and actions to be taken. The development process of the Bakastif game will be presented in narrative text form.

###### c) Conclusion Drawing

Conclusions will be drawn based on the presented data from each stage of the Bakastif game development.

##### 2) Quantitative Data Analysis

###### a) Feasibility Test Data Analysis

The technical analysis of product feasibility data is conducted during the development and implementation stages before large group testing. Expert validation involving specialists in early childhood education curriculum, special needs education, and research methodology is used as a reference to determine product feasibility based on theoretical studies.

The researcher analyzes the final draft using scores obtained from summing item scores given by experts through media observation on the feasibility instrument. A product is considered feasible for small-scale trials if it meets the minimum feasibility standards. Another feasibility test will be conducted before a large-scale test is carried out. The score is first converted into a percentage using Riduwan's (2013) formula as follows:

$$NP = \frac{n \times 100}{N}$$

Description:

NP = Percentage score

n = Score obtained

N = Total score/data

The resulting percentage will be classified to draw conclusions from the data, as follows:

**Table: Feasibility Percentage Classification**

Percentage	Criteria	Classification
0-20%	Very Poor	Very Unfeasible
20,1-40%	Poor	Unfeasible
40,1-60%	Fair	Less Feasible
60,1-80%	Good	Feasible
80,1-100%	Very Good	Very Feasible

Source: Fundamentals of Statistics, 2013

b) Effectiveness Test Data Analysis

The data analysis techniques used in this research and development are qualitative and quantitative analysis techniques. At this stage, the results of observations, interviews and field notes are presented using qualitative descriptive which are concluded to clarify the existing problems. This is to strengthen the background of the research problem. In the product development process, data in the form of suggestions for improvement from observer opinions are reduced, presented, then analyzed to draw conclusions as revision material. Furthermore, the management of this research data will be analyzed using quantitative descriptive statistical analysis with a pre-experimental one group pretest posttest design. This statistic is carried out using the formula for the difference between two averages for dependent samples based on (Kadir, 2019) as follows:

$$t_0 = \frac{[Y_1 - Y_2]}{\sqrt{S_{y1}^2 + S_{y2}^2 - 2r_{y1y2}S_{y1}S_{y2}}}$$

The results of the t-count will be compared with the t-table as part of a one-way t-test that will prove whether there is an increase between before and after the Meldia overthrow genealogy.

## RESULTS AND DISCUSSION

### A. Results of Needs Analysis

The needs analysis process begins with collecting data based on the needs that occur in the field. This study was conducted by describing the problem through the process of observation, interviews and questionnaires. Data from interviews and observations were collected based on the confessions of teachers from three Raudhatul Anfal schools in Penjaringan District, North Jakarta. This was done so that the research stages could be developed by referring to the procedures and objectives of the ADDIE development model research, to find specific needs in the design of Bakastif game products by validating the product.

### B. Model Feasibility Results

The feasibility test was conducted on the Bakastif game through expert evaluation as part of the theoretical formative evaluation of the Bakastif game and the processing of interview data and field notes as an empirical test. The results of the expert assessment will be processed and analyzed using the following formula.

$$NP = \frac{n \times 100}{N}$$

Description:

NP = percentage value

n = acquisition value

N = total number of data/values

The percentage results will be classified for the following data conclusions:

**Eligibility Percentage Classification Table**

Percentage	Classification	Classification
0-20%	Very not good	Not really worth it
20,1-40%	Not good	Not feasible
40,1-60%	Not good	Not worth it
60,1-80%	Good	Worthy
80,1-100%	Very good	Very worthy

## 1. Theoretical Test

The following is a summary of the results of aspect validation by experts.

**Expert Evaluation Results Table**

<b>Expert</b>	<b>Score</b>
Early Childhood Education Curriculum and Learning	88%
Development of Children with Special Needs	88%
Media Development	77%
<b>Average score</b>	<b>84%</b>

Judging from the results of the assessment summary or validation carried out by experts, the overall average score was 84% with the category Very Suitable for use in stimulating the concentration abilities of children with ADHD.

## 2. Empirical Test

The Bakastif game has been tested on 4 ADHD children from four schools as an empirical trial process to prove the feasibility of the developed media. The research findings obtained through field notes were then processed and verified.

## C. Discussion

At the analysis stage, it is made based on problems found from various field needs. Adjustment of material content, limited to focusing only on the problem of educational game tools with behavioral disorders of ADHD children's concentration ability. This is done in order to create a development product that can function to stimulate the creation of a better learning atmosphere for ADHD children with a longer focus span.

At the design stage, the design of the Bakastif game product is carried out as a result of the development of the Fun Thinkers Books game product which has been adjusted based on data obtained from the start of the initial research stage and needs analysis. At this design stage, an educational game tool is designed with the advantage of using waste from used goods. The design that is developed starts from selecting media materials, media colors, media displays, and media sizes, with provisions according to the characteristics of ADHD children. The material presented aims to stimulate the concentration ability of ADHD children to be longer with games that can attract children's interest in supporting their learning process.

The development stage is the initial stage of the Bakastif game being made into a complete series that is reviewed by experts. With the aim of obtaining input and suggestions for improvement in perfecting the Bakastif game product. Expert input was used as a reference for revision, and the results of filling out the validation questionnaire determined the suitability of this product for testing on children with ADHD.

## CONCLUSION

This game tool uses materials from used goods, as the main raw material for making it, this is done by researchers as a solution to the needs of the field in the type of innovative, effective and feasible development products, to overcome the problem of the lack of educational game tools that are in accordance with the conditions of needs and characteristics of ADHD children with inattention behavior disorders. The results of the assessment by expert validators have stated that the Bakastif game development product is "very feasible" to be used as a children's game tool, especially for children with needs in the ADHD category. The results of the trial on the use of this game have been feasible to be developed by taking its benefits in stimulating concentration skills in ADHD children through game patterns that build habits and consistency in children's new behavior through simple checklist instructions. The Bakastif game is a game tool that is in accordance with the stages of cognitive development of children in the age range of 2-7 years, with game evaluations that can be taken based on the conditions and needs of the child.

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