

## THE INFLUENCE OF BORNEO PUZZLE GAME BASED ON EDUCATION GAME TOWARDS THE LEVEL OF CONCENTRATION OF CHILDREN WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER (ADHD) IN THE EXTRAORDINARY SCHOOL OF PONTIANAK CITY

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### ABSTRACT

ADHD is a mental disorder characterized by attention deficits, hyperactivity, and impulsivity, so having difficulty concentrating. One of the efforts to increase concentration is to provide play therapy with a Borneo puzzle based education game. This study aimed to determine the effect of a Borneo puzzle game based on an education game on the level of concentration of children with ADHD. The study methods used were *quasi-experimental*, with a population of 20 elementary students and *a total sampling technique*. 10 students were given a Borneo puzzle based on an education game, and 10 students were given a conventional puzzle for 6 consecutive days. We used Concentration Grid Exercise as an instrument, and statistical tests were analyzed with *paired t-test* and *independent t-test*. *Paired t-test* results showed  $p = 0,000$  in the intervention group and  $p = 0,001$  in the control group ( $p < 0,05$ ), which means that the Borneo Puzzle game based on education games and conventional puzzles had a significant effect on the concentration level of ADHD children. The average difference in total score concentration level between before and after treatment in the intervention group was 4,60 (SD 2,45) greater than the control group, which was 3,70 (SD 2,35), with *independent t-test* results showing  $p = 0,415$  ( $p > 0,05$ ) showing no significant difference in the total score. Conclusion: The Borneo Puzzle game based on education can increase the level of concentration of children with ADHD in the Extraordinary School in Pontianak City. Borneo Puzzle, a game based on education, can be used as an alternative game model in play therapy to increase the concentration of children with ADHD.

### ABSTRAK

ADHD merupakan suatu gangguan mental ditandai dengan ketidakmampuan memusatkan perhatian, hiperaktivitas, impulsivitas sehingga mengalami kesulitan berkonsentrasi. Salah satu cara untuk meningkatkan konsentrasi adalah memberikan terapi bermain Borneo Puzzle berbasis game edukasi. Penelitian ini bertujuan mengetahui pengaruh permainan Borneo Puzzle berbasis game edukasi terhadap tingkat konsentrasi anak ADHD. Metode penelitian *quasi eksperimen* dengan populasi 20 siswa SD menggunakan teknik *total sampling*. Sebanyak 10 siswa diberikan permainan Borneo Puzzle berbasis game edukasi dan 10 siswa diberikan puzzle konvensional selama 6 hari berurutan. Instrumen penelitian adalah *Concentration Grid Exercise*, dengan uji statistik menggunakan *paired t-test* dan *independent t-test*. Hasil uji *paired t-test* didapatkan nilai  $p = 0,000$  pada kelompok perlakuan dan nilai  $p = 0,001$  pada kelompok kontrol ( $p < 0,05$ ) menunjukkan bahwa permainan Borneo Puzzle berbasis game edukasi maupun puzzle konvensional memberikan pengaruh yang bermakna terhadap tingkat konsentrasi anak ADHD. Rerata selisih total skor tingkat konsentrasi antara sebelum dan sesudah perlakuan pada kelompok perlakuan yaitu 4,60 (SD 2,45) lebih besar dibandingkan kelompok kontrol yaitu 3,70 (SD 2,35), dengan uji *independent t-test* didapatkan nilai  $p = 0,415$  ( $p > 0,05$ ) menunjukkan tidak ada perbedaan selisih total skor yang bermakna. Kesimpulan: Permainan Borneo Puzzle berbasis game edukasi dapat meningkatkan konsentrasi anak ADHD di SLB Kota Pontianak. Diharapkan permainan Borneo Puzzle berbasis game edukasi dapat dijadikan model permainan alternatif dalam terapi bermain untuk meningkatkan konsentrasi anak ADHD.

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## INTRODUCTION

ADHD is one of the most common mental disorders that affect children. ADHD can also continue into adulthood. Symptoms of ADHD include inattention (inability to maintain focus), hyperactivity (excessive movements that are not in accordance with the settings), and impulsivity (haste actions that are done without thinking) (Elmaghraby & Garayalde, 2022).

The American Psychiatric Association estimates that 8.4% of children and 2.5% of adults have ADHD. ADHD is often found in school-age children (Elmaghraby & Garayalde, 2022). Visser et al. stated that 11% of school-age children have ADHD (CHADD, 2017; Visser et al., 2014). Based on gender, ADHD is more common in boys than girls, and data from the Global Burden of Disease Study found that the prevalence of ADHD worldwide in boys is 2.2% and in girls is 0.7% (Sholaichach, 2017). Preliminary studies that have been conducted in big cities in Indonesia found that the prevalence of ADHD ranges from 4.2 to 26.4% (Kepmenkes, 2015). Specifically for the DKI Jakarta area, school-age children reach 26.2% (Adzaningtias, 2016). The prevalence of ADHD in Pontianak City, based on the results of interviews with researchers with the Heads of SLB Cahaya Bangsa, SLB Bina Anak Bangsa, SLB Kinasih, and SLB Autis Kalimantan Barat, found that the total number of elementary school students with ADHD is 20 students, with 17 boys and 3 female students.

Symptoms of ADHD in school-age children can affect academic abilities because they tend to experience learning difficulties that are more related to difficulty concentrating and an inability to focus. Children with this disorder cannot concentrate for more than five minutes (Widijati, 2014). Concentration difficulties cause ADHD children to have difficulty completing the tasks assigned to them. Children with ADHD who have difficulty concentrating will be easily distracted and will have difficulty understanding instructions, so they often fail to complete tasks, both schoolwork and assignments that they get from their surroundings. In addition, children with ADHD who have trouble concentrating are often rejected by the environment because they find it difficult to concentrate on what they are doing (Zaviera, 2014). The results of observations by researchers at SLB Bina Anak Bangsa on several students with ADHD showed that the behavior of these students showed symptoms of hyperactivity accompanied by repetitive impulsive behavior as well as the inability to focus attention when the teacher was explaining lessons or giving instructions.

The management given to children with ADHD is in the form of comprehensive pharmacological therapy and psychosocial therapy. Puzzles have many advantages compared to other types of games because puzzle games can improve cognitive skills, fine motor skills, social skills, eye and hand coordination, logic, and knowledge (Sugari, 2014). Puzzle games were chosen because this type of game is easy to do and doesn't require a lot of money. Puzzle games for children with ADHD function to increase attention and concentration when assembling puzzles. Educational games of the puzzle type increased the concentration of children with ADHD at Arogya Mitra Acupuncture Klaten (Khayati & Pranandari, 2019). Apart from that, another preliminary study stated that educational games of the picture puzzle type can improve the concentration abilities of children with ADHD, which can be applied at school or at home (Aliyyah, 2014).

One way to increase the attention of children with ADHD is by implementing a technology-based game using an Android known as an educational game. The use of educational games as an educational learning method serves to attract and increase the attention of children with ADHD so that their learning concentration increases (Al Irsyadi & Nugroho, 2015). Educational games can be easily accessed via Android, so they are very practical to use. The results of interviews conducted by researchers with the heads of SLB Cahaya Bangsa and SLB Kinasih Pontianak stated that their students had been introduced to audiovisual-based learning media through computer and Android technology, including educational games. In addition, preliminary studies show that educational games based on open source for children with ADHD have been implemented in SLB Cahaya Bangsa (Sari et al., 2016).

In addition, Syofian and Tonni stated that the use of educational games of the number and letter puzzle type can increase interest in learning in children with ADHD (Syofian, 2017).

The results of the researcher's interviews with the Heads of SLB Cahaya Bangsa, SLB Bina Anak Bangsa, SLB Kinasih, and SLB Autis Kalimantan Barat stated that they had never implemented educational game-based puzzles as a form of play therapy management to increase the concentration of children with ADHD. The researcher's preliminary study found that until now there has been no Android version of the puzzle game that describes the characteristics of West Kalimantan, especially Pontianak City. Based on this, the researchers designed an educational game-based puzzle game called Borneo Puzzle, which can be accessed via Android and is easy to play for children with ADHD. Borneo Puzzle contains an introduction to culture in West Kalimantan, which consists of several well-known locations in West Kalimantan, especially the City of Pontianak, namely the Kadriah Pontianak Palace, the West Kalimantan Museum, the Radakng House in West Kalimantan, the Equator Monument, the Digulis Monument, and the Grand Mosque. Mujahideen. Borneo Puzzle is designed with a mix of attractive colors, pictures, and sounds, combined with animations that can increase the attention and concentration of children with ADHD. It is designed with simple commands so that children with ADHD can easily understand it. Apart from that, Borneo Puzzle is also practical to use because it can be downloaded on the *Google Play Store* and is very easy to use for children with ADHD. The type of cellphone used to run this educational game has minimum Android *Jelly Bean* specifications, a screen resolution of 480 x 854 pixels, and 1 GB of RAM (Wibisono & Findawati, 2010). This educational game also uses a touch screen feature (touchscreen) so that it can be easier for children to hold and operate it.

Based on the problems above, an alternative solution is needed to increase concentration in children with ADHD, one of which is by implementing the Borneo Puzzle based on educational games. based on the background above, the purpose of this study was to analyze the effect of the Borneo Puzzle game based on educational games on the concentration level of children with ADHD in the Extraordinary School in Pontianak City.

## METHOD

### Types of Research

This type of quantitative research uses a pre-test and post-test nonequivalent control group design.

### Location and Time of Research

This research was conducted in SLB Cahaya Bangsa, SLB Bina Anak Bangsa, SLB Kinasih and SLB Autis Kalimantan Barat. The research was conducted from January to June 2020.

### Population and Sample

The study population was 20 students with ADHD at Extraordinary School in Pontianak City, with a sample of 20 elementary school students with ADHD, divided into an intervention group of 10 students with the Borneo Puzzle intervention and a control group of 10 students with the conventional puzzle intervention. Selection of the sample using *the total sampling technique*.

### Data Collection

Data collection used the Concentration Grid Exercise instrument from Harris and Harris (1984). The results of the validity and reliability tests from the Puspaningrum study (2013) obtained a validity test of the value of  $t_{count} > t_{table}$  ( $8.771 > 1.86$ ), and the results of the reliability test obtained the value of  $r_{count} > r_{table}$  ( $0.96 > 0.63$ ). These results conclude that the Concentration Grid Exercise is valid and has very high reliability. The Concentration Grid Exercise consists of 100 numbers starting from the numbers 00 to 100, which are placed randomly in 10 rows and 10 columns. Respondents sorted the numbers by forming lines starting from 01, 02, and so on within 10 minutes. The concentration level is calculated based on the correct number of lines drawn by the respondent. The equipment used in data collection was writing instruments, sheets of Concentration Grid Exercise, and a stopwatch. Data collection was carried out before the intervention (*pre-test*) on day 1, followed by the intervention using Borneo Puzzle in the intervention group and conventional puzzles in the control group for 6 days. Borneo Puzzle is played within 6 days for 15 minutes per day and must be accompanied by a teacher or adult, with the provision that the medium category puzzle consists of 6–9 puzzle pieces for mild ADHD

and the easy category puzzle consists of 4 puzzle pieces for moderate ADHD. Researchers on the 7th day took data again (*post-test*) to determine the concentration level of children with ADHD using the Concentration Grid Exercise instrument.

### Processing and Analysis of Data

The univariate analysis of the research described the characteristics of children with ADHD, which included gender, age, type of ADHD, and a description of the level of concentration. The characteristics of children with ADHD are presented in the form of percentages, while the concentration level is presented in the form of the mean and standard deviation. The bivariate analysis in this study used the *paired t-test* and the *independent t-test*.

## RESEARCH RESULTS

### Description of the Characteristics of Children with ADHD

**Table 1. Description of the Respondents' Characteristics of the Intervention Group and Control Group (n = 20)**

The Characteristics of Children with ADHD	Intervention		Control		p*
	n	%	n	%	
Age					
6 – 9 years	7	70	7	70	0.510
10 – 12 years	3	30	3	30	
Gender					
Boy	9	90	8	80	0.598
Girl	1	10	2	20	
The ADHD type					
Mild	5	50	5	50	0.527
Moderate	5	50	5	50	

Table 1 shows that the characteristics of children with ADHD in the intervention group and control group based on age are mostly 6–9 years of 70% and 70%, the most gender is boy by 90% and 80%, and the most type of ADHD is the same between mild and moderate by 50%. The results of the *Chi square test* based on age characteristics obtained a value of  $p = 0.510$ , gender obtained a value of  $p = 0.598$ , and type of ADHD obtained a value of  $p = 0.527$ , which means that the characteristics of the two groups are equivalent and there is no significant difference between the two groups ( $p > 0.05$ ).

### Analysis of the Effect of Educational Game Based Borneo Puzzles on the Concentration Level of Children with ADHD

**Table 2. Analysis of the Effect of Educational Game Based Borneo Puzzles on the Concentration Level of Children with ADHD (n = 20)**

Concentration Level	Pre-test			Post-test			Difference	p*
	Mean	SD	SE Mean	Mean	SD	SE Mean		
Intervention	11.20	4.26	1.348	15.80	2.61	0.827	4.60	0.000
Control	11.10	5.78	1.828	14.80	5.26	1.665	3.70	0.001
p **	0.965			0.597			0.415	

Table 2 shows an overview of the concentration level of children with ADHD. It was found that there was an increase in the average concentration level in the intervention group from 11.20 (SD 4.26) before treatment to 15.80 (SD 2.61) after treatment. An increase in the mean total concentration level score also occurred in the control group, from 11.10 (SD 5.78) before treatment to 14.80 (SD 5.26) after treatment. The results of the *paired t-test* analysis before and after the intervention in the intervention group obtained a value of  $p = 0.000$ , which means that there is a significant effect of the Borneo Puzzle game based on educational games on the concentration level of children with ADHD. The results of the analysis in the control group obtained a value of  $p = 0.001$ , which means that there is a significant effect of conventional puzzle games on the concentration level of children with ADHD. While the results of the *independent t-test* analysis before the intervention obtained a p value of 0.965, after the intervention

they obtained a p value of 0.597, and the difference obtained a p value of 0.415, which means there was no significant difference before, after, and difference in mean concentration levels in the intervention and control groups. Overall, the results of the analysis show that giving the Borneo Puzzle based on educational games has a better effect than conventional puzzle games on the concentration level of children with ADHD, with an average difference of 4.60 greater than 3.70.

## DISCUSSION

### The Characteristics of Children with ADHD

The results showed that the characteristics of children with ADHD based on age were dominated by the age group 6–9 years, namely 14 children (70%) and the age group 10–12 years, namely 6 children (30%) in both groups. The symptoms of ADHD are more dominant in children under 7 years of age and decrease with increasing age (Novriana et al., 2014). Clinically, 3–5% of children have ADHD, with a peak at 8–9 years of age, and about 50% of diagnosed cases occur before 5 years of age. The younger the child, the type of ADHD that often appears is hyperactivity or impulsivity, while teenagers are more dominated by the inattentive type. In childhood, the effects of ADHD are extensive and touch every aspect of a child's life, including the learning process at school. Decreased social skills, low learning ability, and a lack of self-confidence. When entering adolescence, there is a change in the symptoms of ADHD from symptoms of hyperactivity or impulsivity or a combination of ADHD to symptoms of inattention. Only 70–80% of children with ADHD still meet the criteria for the previous type of ADHD in 1–2% of the overall adolescent population. The results show that 1/3 of people diagnosed with ADHD as children continue to experience these symptoms into adulthood.

Most of the sex characteristics were male in the intervention group by 90% and female in the control group by 80%. When accumulated, the frequency obtained is 85% for boys and 15% for girls. This result is in line with Ratnasari et al.'s study in 20 elementary schools in Manado City, where the sex most experiencing ADHD is boys (57.3%) (Ratnasari et al., 2016). Another study that showed similar results, namely where the most sex was found to be boys (64%), and 71.4% of ADHD children were boys (Sugari, 2014; Yusuf et al., 2017). The increase in ADHD in the male sex is because boys show more aggressiveness while girls show more cognitive weakness, so the symptoms are more obvious in boys (Novriana et al., 2014). In addition, increased testosterone levels can negatively affect neurological function because they can inhibit the function of dopamine in important areas throughout the brain. When testosterone levels increase, the risk of ADHD symptoms will also increase. While progesterone plays an important role in maintaining hormonal balance in women, it can also play an important role in the regulation of ADHD symptoms. Decreasing estrogen levels impact a woman's cognition, triggering mood swings and negatively affecting memory, which is a common symptom of ADHD in women. Several studies have shown that these two distinct expressions of ADHD are gender-dependent due to a specific gender imbalance of testosterone and estrogen (Hortorf Medical Group, 2018). Epidemiologically, the ratio of ADHD in boys and girls is 4:1. This is because boys are more at risk of having almost every behavioral or emotional problem in childhood (Yusuf et al., 2017).

Based on DSM V, there are several levels of severity for ADHD, which consist of mild, moderate, or severe types (Elmaghraby & Garayalde, 2022). In this study, it was found that the type of ADHD showed the same results: 50% mild type and 50% moderate type in both groups. The determination of the severity of the type of child with ADHD is based on the *Abbreviated Conners Rating Scale* (ACRS) score that was diagnosed by a child psychiatrist before entering the SLB. The mild type is based on the presence of few symptoms, and the symptoms cause minor disturbances in social, school, or work environments. Moderate types based on symptoms or disorders are in the mild and moderate categories (CHADD, 2017). ADHD children who are included in the mild and moderate types have ADHD symptoms consisting of an inability to focus attention, hyperactivity, impulsivity, or a combination of symptoms. Preliminary studies show that the predominant type of hyperactivity, or impulsivity, has a greater incidence when compared to the inattentive type. This is in line with Novriana et al., who stated that in children with ADHD who are younger and at lower grade levels, symptoms of hyperactivity or impulsivity are more dominant than other symptoms, whereas in children who are older and at higher grade levels, symptoms of inability to focus attention are more dominant than other symptoms (Novriana et al., 2014).

### Analysis of the Effect of Educational Game Based Borneo Puzzles on the Concentration Level of Children with ADHD

Playing puzzles is an easy way to train brain function. When a child matches one color with another or arranges a building, the brain will release the hormone dopamine, which is a chemical compound in the brain that functions to convey messages to the nerves that function to increase brain abilities. When playing puzzles, children will form a mind that is able to develop and train brain concentration (Khayati & Pranandari, 2019). Other benefits of puzzle games include being able to develop physical and motor skills, creativity, communication, socialization, emotion or personality, cognition, sensory acuity, solve problems, develop imagination and thinking skills, train accuracy, and develop persistence (Fatimah, 2012). Puzzle games can also reduce hyperactive behavior in children with ADHD and increase attention, so that concentration also increases. Puzzle games are also useful because, in puzzles, children with ADHD will learn to understand and remember shapes, colors, and concepts and try to solve a problem (Syofian, 2017).

During the implementation of the research at SLB Cahaya Bangsa, SLB Bina Anak Bangsa, SLB Kinasih SLB, and SLB Autis Kalimantan Barat, there were differences in the symptoms of the research respondents when given a treatment. But overall, the symptoms caused by children with ADHD include an inability to focus attention (intention), hyperactivity, impulsivity, or a combination of symptoms. Before giving the Borneo Puzzle game based on educational games, the researchers determined the type of symptoms of children with ADHD to determine the mild or moderate type category. If the respondent has mild symptoms of ADHD, then the type of Borneo puzzle game that is given is a medium category puzzle consisting of 6–9 puzzle pieces, while respondents with moderate ADHD symptoms will be given an easy category puzzle type consisting of 4 puzzle pieces.

The results of the *paired t-test* in the intervention group obtained a value of  $p = 0.000$  ( $p < 0.05$ ), which means that there is a significant effect of the Borneo Puzzle game based on educational games on the concentration level of children with ADHD. During the implementation of the Borneo Puzzle game based on educational games, there was progress in behavior changes in children with ADHD, including tending to be more interested, being able to maintain attention and concentrate more, being willing to follow directions from researchers and teachers, and being able to sit quietly, accompanied by reduced behaviors of hyperactivity and impulsivity. Based on the results of the study, it can be concluded that the Borneo Puzzle game, based on educational games, can increase attention and concentration and reduce hyperactivity and impulsivity in children with ADHD. These results are in line with those of Syofian, who designed an educational game in the form of a puzzle consisting of recognizing letters and numbers for ADHD children in the Bekasi Alam Kindergarten class, and the results show that it can increase attention and understanding regarding letters and numbers in ADHD children (Syofian, 2017).

Researchers used the Borneo Puzzle application based on an educational game that contains an introduction to culture in West Kalimantan for children with ADHD and consists of several well-known locations in West Kalimantan, especially Pontianak City, namely the Pontianak Kadriah Palace, the West Kalimantan Museum, the Radakng Kalimantan House West, the Equator Monument, the Digulis Monument, and the Mujahidin Grand Mosque. Borneo Puzzle was designed with the aim that children with ADHD can focus their attention when compiling puzzles and be able to know the culture in Pontianak City, so it is hoped that there will be educational messages conveyed to the users of this game. Borneo Puzzle is designed with an interesting mix of colors, pictures, sounds, and animations so that it can attract the attention of children with ADHD. For the duration of the Borneo Puzzle game, it is played within 6 days for 15 minutes per day and must be accompanied by a teacher or adult. This is in line with the preliminary study of Khayati & Pranandari, which stated that playing puzzles for 15 minutes at each meeting can increase the concentration of children with ADHD (Khayati & Pranandari, 2019).

The results of the analysis in the control group obtained a value of  $p = 0.001$  ( $p < 0.05$ ), which means that there is a significant effect of conventional puzzle games on the concentration level of children with ADHD. This is in line with Khayati & Pranandari, where the results of his research showed that there was a significant effect on the concentration level of children with ADHD at Arogya Mitra Akupuntur Klaten after being given a puzzle educational game for 5 consecutive days with a value of  $p = 0.000$  ( $p < 0, 05$ ) (Khayati & Pranandari, 2019). The conventional types of puzzles used in this study are illustrated puzzles whose pictures are contained in the Borneo Puzzle game based on educational games, including pictures of the Pontianak Kadriah Palace, West Kalimantan Museum,

West Kalimantan Radakng House, Equator Monument, Digulis Monument, and Mujahidin Grand Mosque. The use of picture puzzles is in line with research conducted by Aliyyah, which states that the use of educational picture puzzle games can improve the concentration abilities of children with ADHD, and research by Aryanto which states that play therapy assembling picture puzzles can improve short-term memory in children with ADHD (Aliyyah, 2014; Fatimah, 2012).

The results showed that there was an increase in the average concentration level in the intervention group from 11.20 (SD 4.26) before treatment to 15.80 (SD 2.61) after treatment. An increase in the mean total concentration level score also occurred in the control group, from 11.10 (SD 5.78) before treatment to 14.80 (SD 5.26) after treatment. During the implementation of the study, the results of the researchers' observations found that there was a change in the level of concentration of ADHD children in the intervention group, which was better than the control group, where the ADHD children initially had difficulty focusing and concentrating, were easily distracted during class learning, and found symptoms of hyperactivity or impulsivity, which affect the level of concentration. After being given the Borneo Puzzle, there was a better reduction in the symptoms of children with ADHD in the intervention group, which included showing attitudes that tended to be more interested when given instructions, being able to maintain attention, being able to follow directions from researchers and teachers, and being able to sit quietly, accompanied by reduced behaviors of hyperactivity or impulsivity. Overall, the results of the analysis show that giving the Borneo Puzzle game intervention based on educational games has a better effect than conventional puzzle games on the concentration level of children with ADHD, with an average difference of 4.60 greater than 3.70.

In line with the opinions of teachers and parents, the results of the interviews found that the application of Android-based puzzle games is more practical and more interesting because it is accompanied by animation and music, which can increase the attention and concentration of children with ADHD compared to using conventional puzzles, which tend to be monotonous and make children get bored quickly. Several teachers at SLB Pontianak City also stated that the Borneo Puzzle game based on educational games is more interesting, more fun, and not boring, so that the delivery of this game can be inserted during the learning process, and the result is a change in behavior in children where they more easily follow instructions during learning. Meanwhile, when viewed from a student perspective, the results of the researchers' observations found that children with ADHD were more interested and able to focus on the researchers' instructions, and there was a decrease in ADHD symptoms when given the Borneo Puzzle based on educational games compared to conventional puzzles.

Until now, there is no literature that specifically discusses educational game-based puzzle games to increase the concentration of children with ADHD. Research by Khayati & Pranandari, who gave conventional puzzles to children with ADHD, showed an increase in pre- and post-concentration levels of 4.27, so researchers refer to an increase in concentration level scores between before and after being given the Borneo Puzzle game based on educational games, the results of which have a greater influence on the concentration level of children with ADHD in SLB Pontianak City. Based on this description, Borneo Puzzle can be used as an alternative game model in play therapy to increase concentration and help overcome other symptoms caused by ADHD in children.

## **LIMITATIONS**

The limitations of this study are the limited number of respondents with ADHD children in Pontianak City, so the researchers used a sampling technique with a total sampling of 20 respondents.

## **CONCLUSIONS AND RECOMMENDATIONS**

The results of the study can be concluded to show that the game Borneo Puzzle, based on educational games, can increase the concentration of children with ADHD in SLB Pontianak City. It is suggested that the Borneo Puzzle game can be used as an alternative game model in play therapy to increase the concentration of children with ADHD, namely by providing games for 6 days in 15 minutes under the supervision of parents and teachers.

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