

The Influence of Preschool Children's Intellectual Maturity and Thematic Learning on Physical Education Learning Outcomes in Elementary School

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Abstract

Elementary school (SD) is the level of basic formal education that follows early childhood education (PAUD). The preparation for entering SD involves two important related factors, namely school maturity and school readiness. Maturity focuses on physical aspects, while readiness is related to the quality and skills of individuals influenced by maturity and learning processes. This study was conducted to determine whether preschoolers' intellectual maturity affects the learning outcomes of physical education and health using a thematic learning method. The research method used in this study was a quasi-experiment, where the experimental group was given a thematic learning approach, while the control group was given a conventional learning approach. The sample used in this study consisted of 60 students, and a written test was used as the instrument at the end of the learning process. Analysis was conducted using a two-way analysis of variance (ANOVA) with a 2x2 factorial design. The results showed that the p-value for student maturity was 0.509, which is greater than the error rate of α (0.05), indicating that there is no difference in the influence of preschoolers' intellectual maturity on the learning outcomes of physical education and health. Meanwhile, the significance value of p (learning method) was 0.016, which is less than the error rate of α (0.05), indicating that there is an influence of the thematic learning approach on the learning outcomes of physical education and health. From these findings, it can be concluded that (a) there is no difference in the learning outcomes of physical education and health between students who are intellectually mature and those who are not, (b) there is a difference in the learning outcomes of physical

education and health between students who are given a thematic learning approach and those who are given a conventional learning approach, and (c) there is an influence of preschoolers' intellectual maturity with the thematic learning method on the learning outcomes of physical education and health.

Keywords: maturity, intellectual, preschool children, thematic learning approach.

Abstrak

Sekolah dasar (SD) adalah tahap pendidikan formal dasar setelah pendidikan anak usia dini (PAUD). Persiapan untuk memasuki SD melibatkan kematangan dan kesiapan sekolah yang penting. Kematangan berkaitan dengan aspek fisik, sedangkan kesiapan berkaitan dengan kualitas dan keterampilan individu yang dipengaruhi oleh kematangan dan proses belajar. Penelitian ini bertujuan untuk mengevaluasi apakah kematangan intelektual anak prasekolah mempengaruhi hasil belajar pendidikan jasmani olahraga dan kesehatan melalui pendekatan pembelajaran tematik. Metode penelitian ini menggunakan eksperimen quasi, di mana kelompok eksperimen menggunakan pendekatan pembelajaran tematik dan kelompok kontrol menggunakan pendekatan pembelajaran konvensional. Sampel terdiri dari 60 siswa dan tes tertulis digunakan untuk mengukur hasil belajar siswa. Analisis dilakukan dengan menggunakan uji analisis varians (ANOVA) dua arah dengan desain faktorial 2x2. Hasil penelitian menunjukkan bahwa tidak ada perbedaan pengaruh kematangan intelektual anak prasekolah terhadap hasil belajar pendidikan jasmani olahraga dan kesehatan, namun terdapat pengaruh pendekatan pembelajaran tematik terhadap hasil belajar pendidikan jasmani olahraga dan kesehatan. Oleh karena itu, kesimpulan dari penelitian ini adalah tidak ada perbedaan hasil belajar pendidikan jasmani olahraga dan kesehatan antara siswa yang matang dan tidak matang secara intelektual, terdapat perbedaan hasil belajar pendidikan jasmani olahraga dan kesehatan antara siswa yang diberi pendekatan pembelajaran tematik dengan siswa yang diberi pendekatan pembelajaran konvensional, dan terdapat pengaruh kematangan intelektual anak prasekolah dengan metode pembelajaran tematik terhadap hasil belajar pendidikan jasmani olahraga dan kesehatan siswa.

Keywords: kematangan, intelektual, anak pra sekolah, pendekatan pembelajaran tematik.

1. INTRODUCTION

Education has now become an essential aspect of everyday life, and individuals are expected to pursue education for a better future. Education is a process aimed at changing the attitudes and behaviors of an individual or group of people, with the ultimate goal of enhancing human maturity through teaching and training (Mulyana & Wardhana, 2022). Therefore, education is an action or process aimed at providing knowledge and skills to individuals or groups with the aim of enabling them to grow and develop optimally and achieve the expected maturity (Raihan et al., 2022).

There is no age that determines a child's maturity to enter school. Each child has a different level and process of maturity and depends on each individual's readiness (Aisyah,

2022). However, the Ministry of Education and Culture has set a minimum age of 7 years for children to enter elementary school, as regulated in the Minister of Education and Culture Regulation No. 51 of 2018 concerning the New Student Admission Policy. In addition, the regulation also requires the child's psychological readiness, which is proven by a written recommendation from a professional psychologist.

Before starting education at the elementary school level, the intellectual maturity of the child needs to be seriously considered as one of the most important aspects (Wardhana, 2022). The intellectual maturity of the child encompasses various cognitive abilities, such as thinking, remembering, and problem-solving skills (Priyatnomo et al., 2016). A child is considered ready to enter elementary school when they are mature enough cognitively (Eprinita, 2020).

The intellectual development of children is divided into four stages, namely the sensorimotor stage, the preoperational stage, the concrete operational stage, and the formal operational stage. In the concrete operational stage, children are able to observe, weigh, evaluate, and explain other people's thoughts in a less egocentric and more objective way. In the formal operational stage, children are able to coordinate cognitive abilities in two areas or types simultaneously (Suharyanto, 2020).

Intellectual maturity can affect school readiness (Aqobah et al., 2020). Intellectual maturity is closely related to a child's ability to perform well in school, and children with better intellectual abilities tend to be more ready to enter the next level of education (Fadillah & Tarigan, 2022). According to Piaget, there are four stages in children's cognitive development, namely the sensorimotor stage, the preoperational stage, the concrete operational stage, and the formal operational stage. These stages are closely related to a child's readiness to enter elementary school (Hartanti & Wardhana, 2023).

Furthermore, early experiences can also have a positive or negative impact on children's intellectual development. Children who grow up in a safe and nurturing environment tend to experience better intellectual development than those who grow up in an unsafe environment and under stress (Crotty et al., 2023). Therefore, it is important for parents and caregivers to provide a safe and nurturing environment for children so that their cognitive development can proceed optimally (Crotty et al., 2023).

School readiness tests can provide valuable information for policymakers in evaluating the progress of communities and countries in meeting the needs of young children. These tests can help detect whether a child is ready to enter the next level of education and provide knowledge on how the environment and previous experiences affect a child's intellectual development (Williams et al., 2019).

Some studies on the need to consider children's intellectual development have been done by some researchers (Fatul & Alias, 2020; Hanur & Rakhmawati, 2021; Sukmawati, 2023; Yuliani et al., 2022; Yusoff & Hamzah, 2021). Some other researchers were focusing on a certain way to teach children's intellectual development (Afrida et al., 2020; Dwi Nada Fadillah & Wiwin A, 2021; Ismail et al., 2021; Puteh & Salam, n.d.; Rachmi et al., 2021). The other researchers found that games (Solievna, 2022; Zourmpakis et al., 2022) and technologies (Altboeva, 2021; Anisimova, 2020; Barenthien et al., 2020; Hasanov & Mamataov, 2022) become the keys to success in teaching preschool children.

This study emphasizes an interdisciplinary approach, combining two separate fields of study, namely preschool child development psychology and physical education in elementary schools. Thus, this research can provide new insights into how preschoolers' intellectual maturity and thematic learning can affect learning outcomes in Physical Education lessons at the elementary school level.

This study also highlights the importance of a holistic approach in early childhood education. By considering the factors of intellectual maturity and thematic learning that can affect the learning outcomes of Physical Education in elementary school, this research can contribute to the development of a more holistic curriculum and teaching strategies at the preschool and elementary levels.

This is highly relevant to the current educational needs that emphasize the development of child-centered learning approaches and acknowledge the importance of interaction among various learning aspects in the teaching and learning process. In this regard, this study can provide conceptual and practical contributions to the overall development of early childhood education.

2. LITERATURE REVIEW

2.1. Intellectual Maturity of Preschool Children

The intellectual maturity of preschool children refers to their cognitive and psychological ability to understand concepts, remember information, solve problems, and think abstractly. In their development, preschool children undergo significant changes in their intellectual maturity. Cognitive development is often referred to as cognitive development in the fields of psychology and education. In the complete psychology dictionary, the word "cognition" means recognition, awareness, and understanding. The term cognitive is known as a concept that encompasses a wide range of human mental behaviors related to understanding, processing information, consideration, problem-solving, belief, and intentionality. This means that cognition is a psychological process that involves efforts to acquire, organize, and use knowledge. In this regard, cognitive development can be defined as a picture or design that uses symbols to see patterns of changes in psychological processes involved in acquiring, organizing, and using knowledge, as well as mental activities such as thinking, weighing, observing, remembering, analyzing, synthesizing, evaluating, and solving problems that occur through interactions with the environment (Fauziah, 2021)

Intellectual development or intelligence is an individual's ability to develop all of their abilities in acquiring new knowledge and being able to effectively apply it in solving a problem, as well as carrying out their functions correctly and appropriately. Intellectual thinking maturity occurs due to biological and environmental processes that influence every individual. In this process, individuals are able to develop their cognitive abilities, including understanding, processing information, considering, problem-solving, beliefs, and intentions. Through interaction with their environment, individuals can acquire, organize, and use knowledge to develop their intellectual thinking maturity (Pratama, 2022).

In Indonesia, the term "school readiness" refers more to the readiness of children to enter Elementary School (SD). According to the Ministry of Education and Culture regulation number 1 of 2021, new students who wish to enroll in first grade of Elementary School must meet the minimum age requirement of 7 years old or at least 6 years old on July 1 of the current year. In the implementation of the student admission process (PPDB), Elementary Schools prioritize new students who are 7 years old. However, the minimum age requirement may be waived to 5 years and 6 months old on July 1 of the current year for students who have exceptional intelligence and/or talents as well as psychological readiness. In the Ministry of Education and Culture regulation number 44 of 2019, it was stipulated that the age for entering Kindergarten (TK) is 5 years old or at least 4 years old for TK A, and 6 years old or at least 5 years old for TK B. Meanwhile, the age range for entering Elementary School is between 7 and 12 years old, with a minimum age of 6 years old on July 1. However, a child who is 5 years and 6 months old may be accepted if they have exceptional intelligence/talents and psychological readiness.

In this study, the researcher grouped the intellectual maturity of preschool children who were ready for school based on their age. This was because many schools in Indonesia, especially in rural areas, do not have tests that measure whether a child is ready for school or not. Therefore, the categories of intellectual maturity in this study followed the regulations of Permendikbud1 in 2021, which state that new students in grade 1 of elementary school are required to meet the minimum age requirement of 7 years old.

2.2. Thematic Learning

Thematic learning approach is a teaching method that focuses on the relationship between learning materials and subjects with a specific theme related to students' daily lives. According to research conducted by Prastowo, the thematic learning approach can increase students' motivation and interest in learning because the material taught is more relevant and contextual to their daily lives. In addition, thematic learning can also help students understand and remember the material taught better (Prastowo, 2019).

On another note, Maulana Arafat Lubis stated that thematic learning can enhance the critical and creative thinking skills of students as they are required to connect different concepts within a theme and solve complex problems. Moreover, thematic learning can also improve the social skills and communication abilities of students as they are expected to collaborate and discuss in groups to complete learning tasks (Lubis, 2020).

However, there are also opinions that indicate the weaknesses of thematic learning. According to Fatmawati, thematic learning can confuse students if there is no good coordination between teachers and students in linking learning concepts with a specific theme. In addition, a lack of coordination between subject teachers can result in the taught material being less integrated with the theme being taught (Fatmawati et al., 2022).

Based on recent research and studies, thematic learning has advantages in enhancing students' motivation and interest in learning. Thematic learning requires students' abilitcritical and creative thinking abilities and social and communication skills. However, proper coordination between teachers and students in linking learning concepts with a specific theme is a crucial factor in maintaining the effectiveness of thematic

learning. This can help students understand and remember the taught materials better, and ultimately increase their interest and motivation in learning.

3. RESEARCH METHODOLOGY

3.1. Participants

In this study, all students enrolled in SDN 016 Loa Kulu were the population being researched. From this population, 60 students were selected as the sample, consisting of 30 students from class 1A and 30 students from class 1B. The sample was taken using a saturated sampling technique, which involved selecting all available classes in SDN 016 Loa Kulu. To determine the experimental and control groups, a random selection process was conducted. Class 1B was selected as the experimental group that would use a thematic learning approach, while Class 1A became the control group with conventional learning. The aim of this study was to compare the students' learning outcomes in both classes and evaluate the effectiveness of using a thematic learning approach on students' learning outcomes. Data on students' learning outcomes were collected through tests and observations during the teaching and learning activities.

3.2. Procedure

The study conducted at SDN 016 Loa Kulu, Kutai Kartanegara Regency, utilized a thematic learning approach for the experimental class, while the control class used a conventional approach. The research consisted of planning, implementing the action, and observing the results. During the planning phase, the teacher had to create a learning scenario by selecting a specific theme and preparing appropriate student activity sheets related to that theme. Evaluation tools, such as tests to assess student learning outcomes, also needed to be developed to evaluate the student's understanding of the material taught.

During the implementation phase, the researcher acted as the teacher and carried out the planned learning design scenario in three meetings. In the observation phase, the researcher acted as the teacher using the thematic learning approach, while the observer observed the actions taken by the researcher and the student's activities in the classroom using observation sheets. In addition, the observer also observed the students' learning outcomes using task sheets, tests, and classroom activities.

3.3. Instrument Trial Results

Before implementing it in SDN 016 Loa Kulu, the instrument for measuring physical education, sports, and health learning outcomes was piloted at SDIT Nurul Ilmi Tenggarong. The test focused on the topic of maintaining the cleanliness of nails and skin, which had been taught to the students at SDIT Nurul Ilmi Tenggarong previously. This was done to test the reliability and validity of the 35 test items and to measure the research sample's ability to learn physical education, sports, and health.

The initial test results showed that 9 out of 10 questions were significant, while one question was not significant with a difficult difficulty index. Out of the 35 test items, 3 insignificant items were revised. The reliability of the test was 0.91, which is greater than

the t-table value of 0.334. This means that the accuracy of the test questions is high and the insignificant questions can be used after revision.

Testing the learning outcomes instrument for physical education, sports, and health at SDIT Nurul Ilmi Tenggara prior to its implementation at SDN 016 Loa Kulu has helped the researchers to identify and improve insignificant test items, in order to improve the quality of the test. This has resulted in the ability to measure the learning outcomes of the research sample at SDN 016 Loa Kulu using the improved test items.

3.4. Statistical Analysis

In this study, the data analysis technique used is the two-way analysis of variance (ANOVA) technique, also known as 2x2 factorial analysis. This technique was chosen to examine the influence of each independent variable and the interaction between the two independent variables on the dependent variable. This analysis assumes that the data are normally distributed, have homogeneous sample variances, and are mutually independent. The two-way analysis of variance (ANOVA) technique allows researchers to test the differences in means between several groups using two different factors at once. This enables the researcher to understand whether there is an effect between the two factors separately or whether they interact with each other on the dependent variable.

4. RESULTS

In this study, data on the test results of physical education, sports, and health education on the topic of maintaining nail and skin hygiene were collected at the third meeting at SDN 016 Loa Kulu, Kutai Kartanegara Regency. The test scores were measured on a scale of 0-35 and aimed to measure students' abilities to understand and apply concepts of maintaining nail and skin hygiene. The 0-35 score scale used in the test can indicate the level of students' understanding of the material, where the higher the score obtained, the better the students' understanding and application of the concepts. This test data can also be used to analyze the differences in learning outcomes between the experimental class with a thematic learning approach and the control class with a conventional approach, as well as to observe the interaction effect of both independent variables on the dependent variable.

4.1. Results of Physical Education, Sports, and Health Learning Outcomes as Reviewed from Treatment

In this study, the scores of physical education, sports, and health learning outcomes from students in the experimental and control classes were measured and compared to see the effectiveness of a thematic learning approach. From the measurements, it can be seen that in the experimental class, students obtained the highest score of 35 and the lowest score of 14, with an average score of 29.06 and a standard deviation of 5.214. Meanwhile, in the control class, the highest score obtained by students was 35 and the lowest was 12, with an average score of 26.42 and a standard deviation of 5.209. The frequency distribution of the scores of physical education, sports, and health learning outcomes from both classes is also shown in Figures 2 and 3. From the figures, it can be seen that most of the students in the experimental class obtained scores between 30-35, with 16 students obtaining that score range. On the other hand, only one student obtained

a low score between 12-15. It can be concluded that the thematic learning approach has a positive impact on student's learning outcomes in physical education, sports, and health subjects.

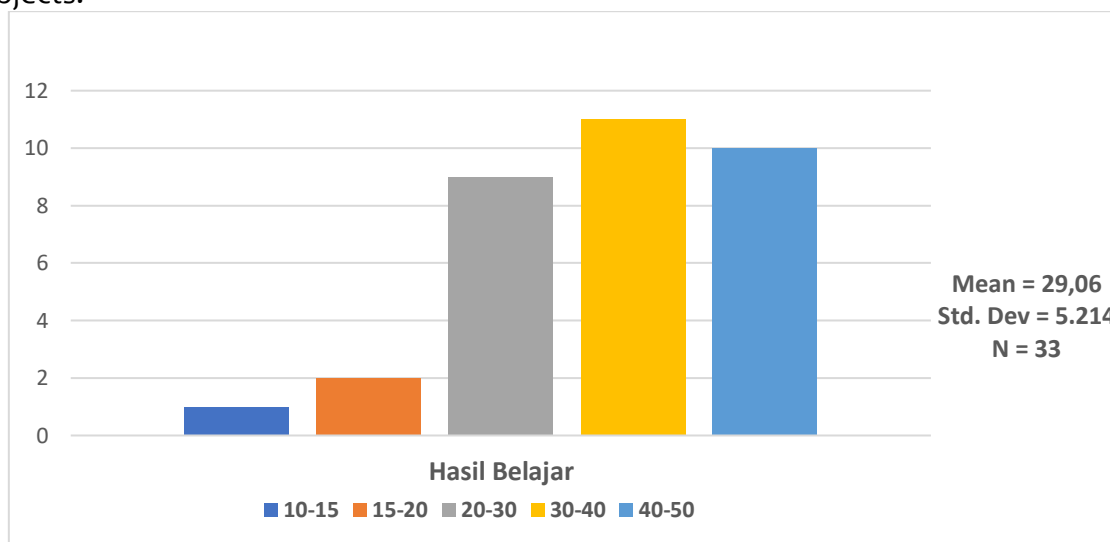


Figure 1 Histogram of scores for learning outcomes in physical education, sports, and health of experimental class students

Based on the frequency distribution of the scores of physical education, sports, and health learning outcomes in the control class, it is known that the highest score range of 30-35 is achieved by 7 students, while the lowest score range of 10-15 is achieved by 1 student. Most of the students have learning outcomes scores between 25-30, with a total of 11 students.

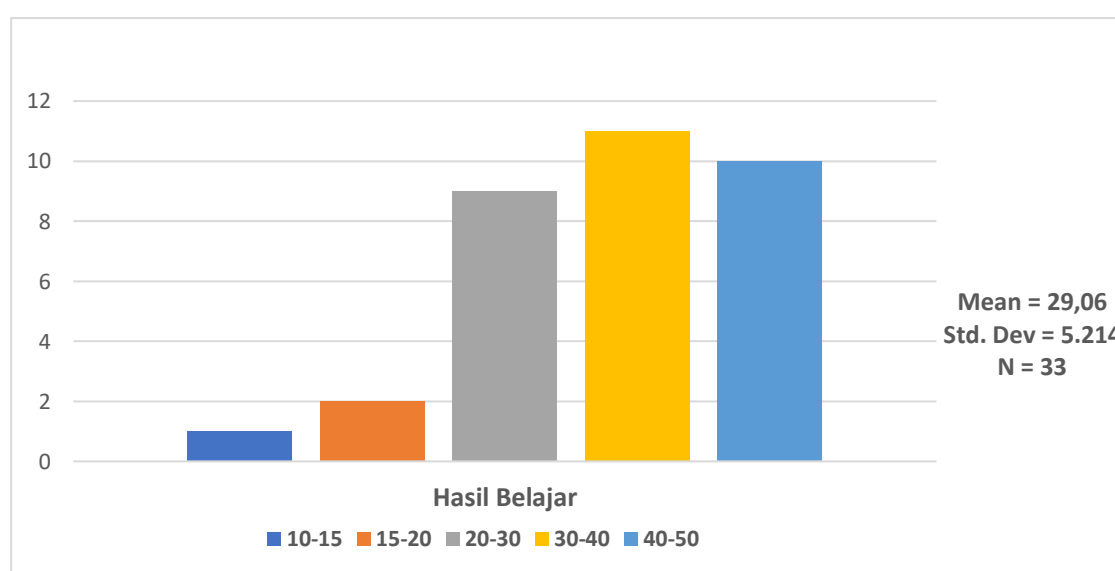


Figure 2 Histogram of physical education, sports, and health learning outcomes scores for the control class students.

Based on the results of the physical education, sports, and health learning outcomes test, it can be concluded that the average test scores in the experimental group are higher than those in the control group. This indicates that the use of a thematic learning approach in the experimental group has a more positive impact on student learning outcomes compared to the use of conventional learning in the control group. Therefore, it can be concluded that the thematic learning approach is more effective in improving student learning outcomes in the subject of physical education, sports, and health.

4.2. Learning Results of Physical Education, Sports, and Health in Terms of Early Childhood Maturity.

There are two categories of students in this study, namely students who are considered mature and those who are considered immature in relation to their learning outcomes in physical education, sports, and health. From the measurement results, students who are considered mature have the highest score of 35 and the lowest score of 20. The average score of learning outcomes for this category of students is 28.23 with a standard deviation of 5.239. Meanwhile, in the category of students who are considered immature, the highest score obtained is 35 and the lowest score is 12. The average score of learning outcomes for this category of students is 27.25 with a standard deviation of 5.59. Figures 4 and 5 show the frequency distribution of learning outcomes scores in physical education, sports, and health based on the category of students' intellectual maturity. From these measurement results, it can be concluded that students who are considered mature tend to obtain higher learning outcomes scores than students who are considered immature.

Based on the frequency distribution of scores for physical education, sports, and health learning outcomes for mature and immature students, it can be concluded that mature students tend to achieve higher learning scores compared to immature students.

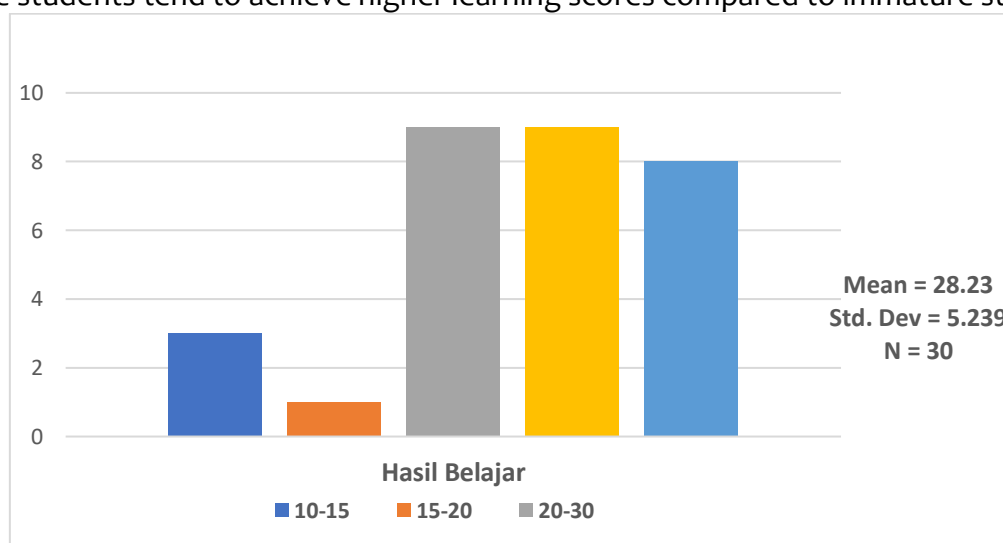


Figure 3 Histogram of frequency distribution of scores in physical education, sports, and health learning outcomes for mature students.

For the mature student group, it can be seen from the frequency distribution that most students obtained scores between 30-35, with a total of 17 students obtaining those scores. Meanwhile, only 2 students obtained low scores between 10-15. On the other hand, for immature students, the frequency distribution of scores shows that there were 6 students who obtained the highest scores between 30-35. The lowest scoring group was occupied by 7 students with scores between 20-25, which is comparable to the number of students who obtained scores between 25-30, which is also 7 students.

Based on the descriptive data of the scores of physical education, sports, and health learning outcomes according to the intellectual maturity of preschool children above, it shows that the average scores of physical education, sports, and health learning outcomes are almost the same or show no difference. In other words, the intellectual maturity of preschool children does not affect the learning outcomes of physical education, sports, and health in the 1st grade of SDN 016 Loa Kulu, Kutai Kartanegara Regency.

4.3. Learning Outcomes of Physical Education, Sports, and Health Reviewed by Treatment and Student Maturity

The data on the scores of physical education, sports, and health learning outcomes in preschool children differentiated by treatment and intellectual maturity can be seen in Table 1. From the descriptive data in Table 1, it is evident that the average score of learning outcomes in physical education, sports, and health in preschool children with mature student categories who learn using a thematic learning approach in the experimental class is higher than in the control class. Meanwhile, in the immature student category, the average score of learning outcomes in physical education, sports, and health in the experimental class is also higher than in the control class.

Table 1 Scores of physical education, sports, and health learning outcomes viewed based on treatment and student maturity

Treatment	Early Childhood Intellectual Maturity	Deskripsi Statistik					
		N	Min	Mak	Range	Mean	SD
Experimental Group	Mature	23	14	35	21	28,43	5,142
	Immature	10	20	35	15	30,50	5,359

4.4. Hypothesis Testing

The two-way ANOVA statistical test method is used to identify the impact of two independent variables, namely learning treatment and intellectual maturity of preschool children, as well as the interaction between the two variables on the results of physical education, sports, and health learning. The two-way ANOVA test is a useful method for determining whether there is a significant difference in the average learning scores between the treatment and control groups, and whether the effect of the treatment varies at each level of intellectual maturity of preschool children.

The data presented in Table 3 indicate that there is a significant difference between the thematic and conventional learning approaches towards the results of physical education, sports, and health learning. The significance value for the treatment effect is

0.016, which is smaller than the value of $\alpha = 0.05$, thus the null hypothesis is accepted. This means that there is a significant difference between the two learning approaches towards the learning outcomes.

Tabel 2 Histogram of physical education, sports, and health learning outcomes scores for the experimental class students

Tests of Between-Subjects Effects

Dependent Variable: Hasil Belajar

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	226.300 ^a	5	75.433	2.915	.042
Intercept	40174.956	1	40174.956	1552.694	.000
USIAANAK	11.457	1	11.457	.443	.509
PMBLJRN	160.018	1	160.018	6.184	.016
USIAANAK * PMBLJRN	117.762	1	117.762	4.551	.037
Error	1423.090	55	25.874		
Total	47570.000	60			
Corrected Total	1649.390	60			

a. R Squared = .137 (Adjusted R Squared = .090)

However, for the effect of preschoolers' intellectual maturity, the significance value is 0.509, which is larger than the α value of 0.05, so the null hypothesis is rejected. In other words, there is no significant effect of preschoolers' intellectual maturity on the learning outcomes of physical education, sports, and health.

Furthermore, the influence of the interaction between the intellectual maturity of preschool children and the thematic and conventional learning approaches has a significance value of 0.037, which is also smaller than the value of $\alpha = 0.05$, so the hypothesis is accepted. This indicates that the interaction between the two variables has a significant effect on the learning outcomes of physical education, sports, and health.

5. DISCUSSION

The number of recent studies linking psychology and physical education subject is very minimal. However, the available studies show that there is a relationship between intellectual development and learning outcomes in the physical education field, such as the study conducted by Wahyu entitled "Analysis of Emotional Maturity on Physical Education Learning Outcomes in Grade XI during the Covid-19 Pandemic." The study concluded that there is a correlation between students' emotional maturity and their learning outcomes in physical education during the pandemic. This is particularly evident in the affective and cognitive assessments, which are important aspects of physical education. The level of emotional maturity of students has a significant role in their success in learning physical education. Students who have a higher level of emotional maturity tend to be better at coping with the stress and pressure that arise during the pandemic, making them more focused and effective in learning (Santiko, 2021). In this study itself, this may not be apparent as the students grow and develop in a conducive environment, and their parents have prepared them by enrolling them in preschools, which have conditioned them..

The study entitled "Pendekatan permainan outbound sirkuit game dalam meningkatkan kematangan emosional dan spiritual melalaui pembelajaran penjas pada siswa SMPN 1 Sumowono" conducted by Pratama and Hudah showed that in cycle I, the average percentage of emotional and spiritual maturity of students was in the low category, at 67.13%. However, there was an improvement in cycle II to 88.54% in the moderate category, indicating an increase of 21.41% in the average percentage of emotional and spiritual maturity of class VIII-D students in the second semester of the 2019/2020 academic year. From these results, it can be concluded that the effective implementation of the outbound circuit game method can improve the emotional and spiritual maturity of students in classes VIII-D. This also indicates that interactive and enjoyable learning methods like outbound can help students in developing their emotional and spiritual maturity. Therefore, the use of innovative learning methods like outbound circuit games can be an effective alternative in improving the quality of learning in schools. This is consistent with this study where the thematic learning method used makes students more comfortable in participating in learning regardless of their intellectual maturity.

The above findings become a recommendation for schools to be more innovative and varied in their teaching methods as found by some researchers to use technologies (Altboeva, 2021; Anisimova, 2020; Barenthien et al., 2020; Hasanov & Mamataov, 2022) and games (Solieвна, 2022; Zourmpakis et al., 2022) in teaching preschool children.

The teachers of preschool need to apply some ways to teach children's intellectual development as suggested by some previous studies (Afrida et al., 2020; Dwi Nada Fadillah & Wiwin A, 2021; Ismail et al., 2021; Puteh & Salam, n.d.; Rachmi et al., 2021) and also need to understand the psychological factors and the characteristics of preschool children (Fatul & Alias, 2020; Hanur & Rakhmawati, 2021; Sukmawati, 2023; Yuliani et al., 2022; Yusoff & Hamzah, 2021).

6. CONCLUSION

Based on the research findings and discussion, it can be concluded that there is no difference in the learning outcomes of physical education and health students in Kutai Kartanegara Regency on the topic of maintaining nail and skin hygiene between mature and immature students. However, there is a difference in learning outcomes between students who are taught using thematic learning approaches and those taught using conventional learning approaches. Furthermore, there is an influence of preschoolers' intellectual maturity and thematic learning methods on learning outcomes on the topic of maintaining nail and skin hygiene.

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