

Assessing the Effectiveness of a Game-Based Method for Enhancing Kangkang Jump Skills in Students

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ABSTRACT: The kangkang jump is one of the basic movements in artistic gymnastics, which is the primary focus of this research. Observations conducted at school revealed that the material related to the kangkang jump was not delivered effectively by the teacher due to inadequate facilities required for the learning process. As a result, students exhibited poor kangkang jumping skills, stiff movements, and a lack of confidence due to fear of failure. This study aims to improve students' kangkang jumping skills through a game-based approach. The research employed an experimental method with a one-group pretest-posttest design. The population included all 140 students in grade V at SDN 2 Ciherang, Kadugede District, for the 2023/2024 academic year, with a research sample of 23 students selected through purposive random sampling. The instrument used was a kangkang jump skill assessment test. Data analysis was conducted using a normality test, which indicated that the pretest data ($sig = 0.305$) and posttest data ($sig = 0.27$) were normally distributed. A homogeneity test was conducted with $sig = 0.451$, and a paired sample t-test hypothesis test showed significant results with $sig = 0.00$. The results of the study demonstrated that the application of a game-based approach in learning significantly improved students' kangkang jumping skills. Future research on learning the kangkang jump can be conducted by integrating technology as an innovation of the Industrial Revolution 4.0.

Keywords: Artistic Gymnastics, Game Approach, Kangkang Jump, Learning Outcomes.

ABSTRACT: *Lompat Kangkang merupakan salah satu gerakan dasar dalam senam artistik yang menjadi fokus utama dalam penelitian ini. Berdasarkan observasi yang dilakukan di sekolah, materi kangkang jump yang disampaikan oleh guru tidak tersampaikan dengan baik karena keterbatasan fasilitas yang dibutuhkan dalam proses pembelajaran. Akibatnya, siswa memiliki keterampilan kangkang jump yang kurang baik, gerakan yang kaku, dan rasa tidak percaya diri karena takut gagal. Penelitian ini bertujuan untuk meningkatkan keterampilan kangkang jump siswa melalui pendekatan permainan. Penelitian ini menggunakan metode eksperimen dengan desain pretest-posttest satu kelompok. Populasi dalam penelitian ini adalah seluruh siswa kelas V SDN 2 Ciherang, Kecamatan Kadugede, tahun ajaran 2023/2024 yang berjumlah 140 siswa, dengan sampel penelitian sebanyak 23 siswa yang dipilih menggunakan teknik purposive random sampling. Instrumen yang digunakan adalah tes keterampilan Lompat kangkang. Analisis data dilakukan dengan uji normalitas, menunjukkan bahwa data pretest ($sig =$*

0,305) dan posttest ($sig = 0,27$) berdistribusi normal. Uji homogenitas dilakukan dengan $sig = 0,451$, serta uji hipotesis menggunakan uji t berpasangan menunjukkan hasil signifikan dengan $sig = 0,00$. Hasil penelitian menunjukkan bahwa penerapan pendekatan permainan dalam pembelajaran kangkang jump secara signifikan dapat meningkatkan keterampilan lompat kangkang siswa. Penelitian selanjutnya dapat dilakukan dengan mengintegrasikan teknologi sebagai inovasi dalam revolusi industri 4.0 untuk pembelajaran lompat kangkang.

Kata Kunci: Hasil Belajar, Gimnastik Artistik, Lompat Kangkang, Pendekatan Bermain.

INTRODUCTION

Artistic gymnastics is a sport that combines acrobatic elements and the beauty of body movements, performed using specific equipment to achieve impressive artistic effects. Artistic gymnastics plays an important role in physical and mental development, particularly in enhancing participants' strength, flexibility, and self-confidence. According to the Federation International de Gymnastique (FIG), gymnastics can be divided into several categories, including aerobic gymnastics, artistic gymnastics, acrobatic gymnastics, rhythmic sportive gymnastics, trampoline gymnastics, and general gymnastics (Widowati & Rasyono, 2019). In Indonesia, the development of gymnastics was marked by the establishment of the Indonesian Gymnastics Association (PERSANI) in 1963, which represents support for this sport (Kurniawan & Sugiarto, 2019).

In artistic gymnastics, one of the movements taught in elementary schools is the straddle jump, which is a component of the vault event (Cristian & Sudarso, 2020). The straddle jump is a type of jump performed by opening both legs while jumping over an object or vault box. This movement not only requires physical strength but also balance and agility, making it an effective exercise for developing children's motor skills. However, despite its importance, the teaching of artistic gymnastics, particularly the straddle jump, is still suboptimal in some elementary schools in Indonesia.

Based on preliminary observations conducted by the researchers at SDN 2 Ciherang, it was found that teachers only taught large ball games, small ball games, and traditional games, without addressing artistic gymnastics material such as the straddle jump. One of the contributing factors is the lack of supporting facilities like vault boxes, leading to students feeling stiff and lacking confidence when performing the straddle jump due to fear of failure. This indicates a gap between the needs of the curriculum and the availability of necessary facilities. According to Pasaribu (2022), jumping movements in artistic gymnastics are not only intended to improve motor skills but also provide physical, mental, and social benefits for students. However, without adequate facilities, achieving these goals becomes challenging.

In the context of physical education in elementary schools, play has a crucial role. According to Erfayliana (2016), "Playing is fun for children." Play not only provides freedom for children to express themselves but also serves as an effective medium for achieving desired cognitive, affective, and psychomotor

learning outcomes in accordance with the school curriculum. This play-based approach is highly relevant in teaching the straddle jump, as elementary school children tend to better understand concrete concepts through enjoyable and interactive activities.

Research conducted by Muhammadi (2023) shows that play-based learning methods can significantly improve the long jump learning outcomes of elementary school students. Nugroho and Dewi (2023) also emphasize that the play approach can achieve successful learning outcomes. These findings reinforce the importance of a play-based approach in teaching artistic gymnastics in elementary schools, particularly in teaching the straddle jump, which requires a high level of agility and confidence from students. However, there is still a noticeable gap between theory and practice. While the play-based approach has been proven effective in improving learning outcomes, its implementation is still limited in some schools, especially those with inadequate facilities. At SDN 2 Ciherang, for example, the lack of facilities such as vault boxes has resulted in students being unable to perform the straddle jump exercises optimally. This highlights the urgent need to improve supporting facilities and implement learning methods that are tailored to the characteristics of elementary school students.

Based on the above explanation, this research aims to explore the effectiveness of the play-based approach on the learning outcomes of elementary school students in the straddle jump. The researcher hypothesizes that a play-based approach supported by adequate facilities will significantly improve students' learning outcomes, both in cognitive, affective, and psychomotor aspects. Thus, this study is expected to provide an important contribution to the development of artistic gymnastics teaching methods in elementary schools, as well as to encourage the improvement of the necessary supporting facilities to achieve the desired learning objectives.

RESEARCH METHOD

The research method is a systematic approach to obtaining data for research purposes. In this study, a quantitative approach is employed to collect numerical data (Karimuddin et al., 2022). The experimental method was used to determine how the treatment affected the controlled conditions, fulfilling the criteria necessary for testing cause-and-effect relationships. This approach aligns with the research question, which seeks to understand the impact of a game-based approach on student learning outcomes in the straddle jump. To achieve accurate results, the study used a one-group pretest-posttest design, involving an initial test before the treatment and a final test afterward. This design allows for a more precise understanding of the treatment's impact compared to the situation before the intervention (Sugiyono, 2019).

The study involved all students of SDN 2 Ciherang in Kadugede sub-district, Kuningan Regency, who were in the second semester of the 2023/2024 academic year, as per the 2013 curriculum. Based on discussions with the physical education teacher, a sample of 23 fifth-grade students, comprising 7 boys and 16 girls, was selected using purposive random sampling, a technique involving specific criteria

(Sugiyono, 2019). The data collection in this study employed a game-based approach for teaching the straddle jump, with learning outcomes measured through a skills test.

The assessment instrument used in the study was a practical skills test for evaluating the learning outcomes of the straddle jump, with each movement rated on a scale of 4. The assessment included: a) The approach, described as running fast with the body leaning forward, eyes focused on the vault, and performing the movement confidently. b) The support phase, described as keeping both feet together with a straight body, hands gripping the vault, and pushing off both feet while spreading the legs wide when passing the vault, with eyes looking forward. c) The landing phase, described as landing on the toes, knees bent, arms straight up, and finishing in an upright standing position. The score for each indicator was calculated as a percentage of the maximum possible score.

The research instrument involved documentation to record the events of the study and skills assessment using a practical test for the straddle jump. The data analysis focused on identifying causal relationships, using paired pretest and posttest data analyzed with the SPSS software. The goal was to determine if there was a significant difference between the pretest and posttest scores in the research sample. A T-test was conducted, as it is a parametric statistical test appropriate for normally distributed data. The pretest and posttest results were compared after the treatment to analyze the data, with the conclusions drawn using the SPSS program.

RESULT AND DISCUSSION

Results

Before conducting the field research, the researchers developed lesson plans (RPP). The learning sessions were conducted once per meeting, with each session lasting 2 x 30 minutes. Field data indicated a significant improvement in the learning outcomes of fifth-grade students at SDN 2 Ciherang in the sports material related to the straddle jump, as evidenced by the noticeable difference between the low pretest scores and the high posttest scores. The pretest and posttest assessments are illustrated in the Figure 1.

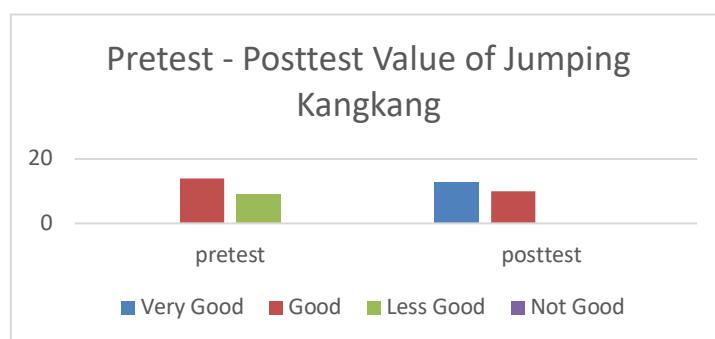


Figure 1. Student Learning Outcomes of Jumping Kangkang

In this study, data from pretest and posttest assessments were gathered and analyzed using the SPSS software to evaluate the impact of a game-based

approach on student learning outcomes in the straddle jump exercise. A Shapiro-Wilk test was used to assess the normality of the data, with a significance level of 0.05. The analysis showed a significant difference between the pretest and posttest results, highlighting the effectiveness of the game-based method in improving student performance. The findings, detailed in the table below, indicate that the intervention successfully enhanced the students' skills, as evidenced by the improved posttest scores compared to the pretest.

Table 1. Test of Normality kangkang jump

Tests of Normality						
	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Student kangkang jump pretest	,155	23	,161	,951	23	,305
Student kangkang jump posttest	,164	23	,111	,901	23	,027

a. Lilliefors Significance Correction

The results from the normality test reveal that the pretest data has a significance level of 0.305, indicating that it is normally distributed, as this value is above the threshold of 0.05. In contrast, the posttest data for the straddle jump has a significance level of 0.027, suggesting a deviation from normal distribution, as this value is below 0.05. This suggests that while the pretest data adheres to the normality assumption, the posttest data does not.

Additionally, a homogeneity test was conducted to evaluate whether the variances across different groups are equal. According to Usmadi (2020), if the significance value from this test is greater than 0.05, it indicates that the variances are similar across the groups. Conversely, a significance value less than 0.05 would suggest differences in variances. The results of the homogeneity test, presented in the table below, are used to determine the consistency of variances between the pretest and posttest groups, which is essential for accurate statistical analysis.

Table 2. Test of Homogeneity Kangkang Jump

Test of Homogeneity of Variances					
		Levene Statistic			
Pretest and posttest learning results of jumping the kangkang	Based on Mean	,578	1	44	,451
	Based on Median	,386	1	44	,538
	Based on Median and with adjusted df	,386	1	39,663	,538
	Based on trimmed mean	,574	1	44	,453

The homogeneity test results revealed a significance value of 0.451, which is above the 0.05 threshold, indicating that the variances among the different data groups are similar. This means the data is suitable for further statistical analysis. Since the study involves two related variables, a paired sample T-test was

employed to test the hypothesis regarding the impact of the game-based approach on student learning outcomes. The objective was to determine if the use of this approach significantly affects students' performance in the straddle jump exercise. The paired sample T-test compares pretest and posttest scores to identify any significant changes resulting from the intervention.

The hypothesis being tested is whether the game-based approach leads to improved student outcomes in the straddle jump. By performing this test, the study aims to assess the effectiveness of the instructional method and provide answers to the research question regarding its impact on student learning. The following results are obtained from the paired sample T-test test.

Table 3. Paired samples statistics Kangkang Jump

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Student's kangkang jump pretest	64,87	23	20,783	4,334
	Student's kangkang jump posttest	79,39	23	16,865	3,517

Table 4. Paired Samples Test Kangkang Jump

	Paired Samples Test						T	Df	Sig. (2-tailed)			
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference								
				Lower	Upper							
Student kangkang jump pretest - student kangkang jump posttest	-14,522	8,517	1,776	-18,205	-10,839	-8,177	22	,000				

To evaluate the significance of the data, two criteria were used: learning outcomes are considered significantly different if the Sig. 2-tailed value is less than 0.05, while values greater than 0.05 indicate no significant difference. The determination of the T-table value relies on the degrees of freedom, calculated as N-1. For this study, with N being 23, the degrees of freedom were 22, and the T-table value at a 5% significance level was 2.074. Analysis of the paired sample test revealed a t-value of -8.177, which is smaller than the T-table value, signaling a significant difference. Moreover, the Sig. (2-tailed) value of 0.000 is less than 0.05, confirming a significant difference between the pretest and posttest results. This indicates that the game-based approach has a substantial impact on improving students' straddle jump skills at SDN 2 Ciherang, thereby supporting the initial hypothesis of the study.

Discussion

In physical education programs, the ultimate goal is to boost students' confidence and enhance their learning outcomes. Teachers must identify effective strategies that encourage all students to participate in physical activities and enjoy their learning experiences. One such strategy, as supported by various studies, is the game-based approach, which has proven to be effective in improving learning outcomes. Sholekhah (2019) found that incorporating games into physical education significantly increases students' confidence and enjoyment in their activities.

This research aimed to evaluate how a game-based approach impacts learning outcomes for the kangkang jump, a fundamental gymnastics skill. The study involved 23 fifth-grade students from SDN 2 Ciherang. Initially, a pre-test was conducted to assess the students' abilities, revealing that six students struggled with the kangkang jump. Subsequently, the researchers introduced a game-based training method and conducted a post-test to measure the effect of the intervention.

The research utilized a pre-experimental design, specifically the one-group pretest-posttest design. This method involves administering an initial test, providing the treatment, and then conducting a final test to assess the treatment's effectiveness. In this case, the game-based approach was implemented according to the lesson plan, and the final test measured the improvement in the students' kangkang jumping skills.

Data collection occurred during the 2023/2024 school year, focusing on the students' kangkang jumping abilities. Normality tests were performed using SPSS, with the Shapiro-Wilk test showing pretest significance at 0.305 and posttest significance at 0.027. These values indicated that the data were normally distributed, as they were greater than 0.05. Additionally, the histogram displayed a bell-shaped curve, further confirming the normal distribution of the data (Akbar, 2018).

Homogeneity testing was conducted to check whether the data variances were equal across groups, which is essential for performing ANOVA or independent samples t-tests. According to Usmadi (2020), this test ensures the data meet the variance equality assumption. The homogeneity test revealed a significance value of 0.451, indicating that the data variances were equal and thus appropriate for further analysis.

A paired sample t-test was then used to compare pretest and posttest scores, as it is suitable for analyzing related samples. This test requires normally distributed data, which was confirmed in this study. The paired sample t-test yielded a t-value of -8.177, which was significant compared to the t-table value of 2.074. The significance value (2-tailed) of 0.000, being less than 0.05, indicated a significant difference between the pretest and posttest results.

Descriptive analysis showed that the average pretest score was 64.87, while the posttest average improved to 79.39. This indicates that the game-based approach significantly enhanced the students' kangkang jumping skills. The significant improvement between the pretest and posttest results supports the

hypothesis that the game-based method positively influences students' performance.

Overall, this study demonstrates that the game-based approach is effective in improving physical education outcomes. The method not only engages students but also leads to notable skill improvements, emphasizing the value of interactive and innovative teaching strategies in enhancing students' physical abilities and overall learning experience.

CONCLUSION

The conclusion of this study shows that a game-based approach is effective in improving students' learning outcomes in kangkang jump skills at SDN 2 Ciherang. The data reveals a significant increase in student scores, from a pretest average of 64.87 to a posttest average of 79.39 after the implementation of this method. This confirms that integrating games into physical education can have a positive impact on student achievement. The findings of this research provide strong evidence that the game-based approach model effectively enhances students' ability to perform the kangkang jump. Therefore, this approach can be recommended as an effective teaching strategy for developing students' motor skills, particularly in kangkang jump activities. This study also reinforces the importance of innovation in teaching methods to achieve better learning outcomes in physical education.

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REFERENCES

Alfulaila, N. (2022). Philosophy and Characteristics of Elementary School Education. In *Angewandte Chemie International Edition*, 6(11), 951-952. (Issue 33). https://idr.uin-antasari.ac.id/23304/1/Filosofis_and_Characteristics_of_Primary_School_Education.pdf

Cristian, S. M., & Sudarso. (2020). The Effect of the Application of the Section Method on Learning Outcomes of Kangkang Jumping Skills. *Journal of Sports and Health Education*, 08, 77-80. <https://ejournal.unesa.ac.id/index.php/jurnal-pendidikan-jasmani/issue/archive>

Endang, Sukamti Rini. (2017). Early Age Artistic Gymnastics Talent Guidance (first, Vol. 4, Issue 1).

Erfayliana, Y. (2016). Play Activities and Children's Physical Development. *Skilled Journal of Basic Education and Learning*, 3(1), 145-158. <http://www.ejournal.radenintan.ac.id/index.php/terampil/article/view/1334/1061>

Jamilah, G., & Nugraheni, W. (2017). The Relationship between Abdominal Muscle Flexibility and Kayang Basic Movement Skills in Artistic Gymnastics.

Indonesian Sports Science Media, 7(2), 56-59.
<https://journal.unnes.ac.id/nju/index.php/miki/article/view/12148>

Karimuddin, A., Misbahul, J., Ummul, A., Suryadin, H., Zahra, F., Taqwin, Ketut, ardiawan ngurah, & Meilida, sari eka. (2022). Quantitative research methodology (M. P. saputa nanda (ed.)).

Kurniawan, A. W., & Sugiarto, T. (2019). Learning floor gymnastics. In Book.

Muhammad. (2023). The Effectiveness of the Play Approach to Improve Long Jump Learning Outcomes in Elementary School Students. Tambusai Journal of Education, 7, 3315-3319.

Nugroho, W., & Dewi, R. (2023). Improving Learning Outcomes of Floor Gymnastics with the Play Method for Class IV Students of SDN 137698 Tanjungbalai City. JSH: Journal of Sport and Health, 4(1), 34-45.
<https://doi.org/10.26486/jsh.v4i1.3096>

Pasaribu, A. M. N. (2022). Basic gymnastics textbook (tiya arika Marlin (ed.)). pt insan cendikia mandiri. www.insancendekiamandiri.co.id

Perdana, F., & Agus, A. (2019). The Effect of Jump To box Training on Increasing Limb Muscle Explosiveness of Women's Artistic Gymnastics athletes Semen Padang Gymnastics Club. Stamina Journal, 2 (Vol 2 No 2 (2019): June Edition of Stamina Journal), 244-253.

Septianti, N., & Afiani, R. (2020). The Importance of Understanding the Characteristics of Elementary School Students at SDN Cikokol 2. As-Sabiqun, 2(1), 7-17. <https://doi.org/10.36088/assabiqun.v2i1.611>

Sugiyono. (2019). Quantitative, Qualitative, and R&D Research Methods (2nd ed). In Qualitative Data.

Usmadi, U. (2020). Testing Analysis Requirements (Homogeneity Test and Normality Test). Educational Innovation, 7(1), 50-62.
<https://doi.org/10.31869/ip.v7i1.2281>

Widowati, A., & Rasyono. (2019). Development of Floor Gymnastics Teaching Materials for Basic Gymnastics Learning for Students of the Faculty of Sports Science, Jambi University. Journal of Chemical Information and Modeling, 53(9), 1689-1699.