



Enhancing Early Childhood Recognition of Traditional Dance through Training Strategies and Video-Based Instruction

Diah Andika Sari ¹, **Laode Anhusadar** ², **Della Raymena Jovanka** ³, **Mutiara Magta** ⁴
¹Universitas Muhammadiyah Jakarta, Indonesia, ²Institut Agama Islam Negeri Kendari, Kendari, Indonesia, ^{3,4}Universitas Terbuka, Jakarta, Indonesia

Keywords:

Children, Dance Training, Sports Approach, Play Movement, Traditional Dance.

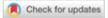
Correspondence to

Diah Andika Sari, Department of Early Childhood Teacher Education, Universitas Muhammadiyah Jakarta, Indonesia.

e-mail:

diah.andika@umj.ac.id

Received 14 04 2025 Revised 24 06 2025 Accepted 20 07 2025 Published Online First 29 07 2025



© Author(s) (or their employer(s)) 2025. Re-use is permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by JGA.

Abstract

To introduce traditional dance to early childhood, interesting training methods and media in accordance with the child's development are needed, so as to arouse children's interest and love for traditional Indonesian dance. This study aimed to obtain an empirical data on the effect of training methods and video tutorials on the ability to recognize traditional Indonesian dance in children. Children's ability to dance traditional dances referred to the motor skills of children aged 5-6 years. The training method was using a sports approach, consists of introduction regional knowledge of dance, a warm-up, traditional dance as the main exercise, and a cooldown. The warm-up and cool-down used play movements, which made children enjoyable and developmentally appropriate. Used experimental research methods 2x2 factorial design, which consists of groups that get treatment and control groups. The sampling technique was carried out by cluster random sampling, 43 children in 2 classes at 2 kindergartens (four classes), in South Tangerang, Indonesia. Data normality test with Lilliefors test found that all data were normal. Homogeneity test with Bartlett's test found that all data were homogeneous. For hypothesis testing, two-way analysis of variance / ANOVA was carried out, then to test the interaction was carried out with the Tukey test. Based on the results of the analysis of variance at a significant level $\alpha = 0.05$, it was found that the score of the ability to recognize traditional Indonesian dances early childhood: the training method with a sports approach was better than the conventional training method; there was an interaction between training methods; Using video tutorial media was not better than audio media; with a sports approach and video tutorials. This study showed that using a sports-based training approach with play movements is a fun and developmentally appropriate method to introduce traditional dance to children. Further research is needed on a larger and broader scale to conclude that this method has the same effect on every traditional dance practice for early childhood children.

To cite: Sari, D. A., Anhusadar, L., Jovanka, D. R., & Magta, M. (2025). Enhancing early childhood recognition of traditional dance through training strategies and video-based instruction. *Golden Age: Jurnal Ilmiah Tumbuh Kembang Anak Usia Dini, 10*(2), 431-447. https://doi.org/10.14421/jga.2025.103-01

Introduction

Early childhood is a critical period that spans from conception to around eight years old (Jazimi & Munirah, 2020), although some scholars, such as Papalia, delimit this phase more narrowly to the first six years of life (Purwaningtyas et al., 2023). Among children aged 5–6 years, motor development becomes particularly prominent, encompassing both gross and fine motor skills. Consequently, educational activities during this phase are most effective when they are aligned with and support the development of these motor competencies (Herdini & Darmayanti, 2023). Fundamental to motor development are principles such as the maturation of the nervous and muscular systems, the sequential nature of skill acquisition, intrinsic motivation, and exposure to rich experiences and repeated practice (Anderson, 2024).

Traditional dance offers a meaningful context for motor development in early childhood. It demands rhythmic, patterned movements performed within a structured composition that adheres to cultural conventions of traditional dance (Tursina et al., 2022; Badaruddin et al., 2024). These movements naturally foster the progression of motor skills in children, engaging them in



an embodied learning process that emphasizes timing, spatial orientation, form, and the dynamic use of energy (Orlandi et al., 2020). Through dance, children explore spatial awareness using their bodies, move in sync with rhythm, and express force through varying intensities of motion—thereby integrating cognitive and physical domains of learning (Newell, 2020).

Dance is a holistic motor activity that supports both gross and fine motor coordination while cultivating integration between eye, hand, and foot movements (Liya & Katoningsih, 2022). More specifically, it promotes perceptual motor development, including enhanced coordination, locomotor and non-locomotor skills, and control over bodily motion (Zulfa, 2023). As emphasized by Mayesky, dance also contributes to balance, physical control, fine muscle coordination, and spatial orientation. In addition to improving physical capabilities, dance nurtures cognitive growth by supporting number sense, social engagement through group activities, and enjoyment of imaginative play (Saleh et al., 2024).

Beyond its developmental benefits, dance education functions as a cultural and personal medium. It introduces children to the mechanics of body movement and supports physical formation and personal expression. Dance also enables self-socialization and fosters personality development, providing non-verbal and aesthetic modes of communication. Importantly, it serves as a conduit for transmitting cultural values and social norms (Dewi, 2020). Thus, integrating traditional dance into early childhood learning is not merely a physical exercise, but a multidimensional pedagogical strategy that enriches children's physical, emotional, social, and cultural development.

The Exercise Method with Play Movement in this study is an exercise method that refers to the sports approach training, which is programmed, provides knowledge related to core motion material, uses warm-up and cooling before and after doing core dance movement exercises (Saptono et al., 2021). While the warm-up and cool-down are done with creative movements, namely movements that use narration, music, and based on certain themes, which are adapted to early childhood development (Christopher, 2024). Creative movement refers to child-appropriate physical activities that incorporate imagination, rhythm, and basic motor skills through structured yet playful motion. Talking about dancing means talking about movement. Learning movement is defined as the process of learning to perfect movement skills, related to motion control, which is focused on the neural, physical and behavioural aspects of human movement (Feng et al., 2022). Learning movement is a process of experience and practice leading to relatively permanent changes to produce skills (Tassignon et al., 2021).

The process of learning movement involves three progressive stages: cognitive, associative, and autonomous. Initially, learners recognize and understand the movements conceptually. As they advance to the associative stage, their skills become more refined and consistent through practice. In the autonomous stage, movements are performed automatically, stored in the central nervous system, and executed with minimal conscious effort—though not all learners reach this level, and automation does not always guarantee efficiency (Czyż & Coker, 2023). This progression is essential in dance, where movement and artistic expression are inseparable. Dance embodies emotional value, and mastering it requires more than physical ability; it demands an understanding of movement as a language of expression. Thus, creating dance necessitates both cognitive and physical learning through continuous and purposeful practice.

The definition of derived from training is the application of a plan to improve sports skills which contains theoretical and practical materials, methods, and rules of implementation in accordance with the goals and objectives to be achieved (Coimbra et al., 2021). Exercise, which comes from the word training, is a process of improving sports skills with a scientific approach, using planned and organized educational principles, so as to increase one's readiness and ability (Maksymchuk et al., 2020). According to Harsono, exercise or training is a systematic process of practicing repeatedly, by increasing the amount of training load (Hartati et al., 2021). Systematic is planning according to a schedule, according to a certain system pattern, with methods from easy to difficult, simple to complex exercises. Repetitive means that movements that were originally difficult to do are repeated over and over again so that they become easier, automatic and reflective in their implementation so that they save more energy. After the time comes the load is added, so that it does not mean training is done every day. Meanwhile, Bompa provides a limitation that training is a systematic sports activity in a long time improved progressively and individually which leads to the characteristics of human physiological and psychological functions to achieve predetermined goals (Datti et al., 2024). Fitts and Postner also share the same view as Bompa, where training is a physical movement activity training program designed to improve some skills and increase a person's energy capacity in special activities (Rodríguez et al., 2024).

Indonesia is a archipelagovast. It was the 4th largest in the world in 2024, has 6 major religions, and hundreds of ethnic groups. It is no wonder that Indonesia is rich with a diversity of languages, cultural arts, customs, architecture, clothing, music, food, and other regional cultural traditions. By the motto of the Indonesian state, namely: "Bhineka Tunggal Ika", which means "Different, but still one", diversity makes up one country. With the development of time, era, and technology, many things that are cultural arts and traditions are starting to be forgotten or abandoned by the community. It was realized when some arts began to be questioned for their identity by allied countries. Starting from traditional food, traditional music, traditional clothing, and traditional dances. For traditional dances, call it reog ponorogo dance from Central Java, Pendet dance from Bali, Piring dance from West Sumatra and several Indonesian cultural arts assets that are claimed by allied countries as their traditional dances.

This study aims to obtain empirical evidence regarding the influence of different training methods and learning media on the ability of children aged 5 to 6 years in South Tangerang to recognize traditional Indonesian dances. The research focuses on how instructional strategies, particularly those involving creative play-based movement compared to conventional methods, affect children's capacity to internalize dance forms rooted in cultural heritage. This emphasis on early learners highlights the importance of aligning pedagogical approaches with developmental needs, especially in fostering motor skills and introducing cultural identity.

Operationally, the study examines several key aspects: the difference in recognition ability between children who received creative movement-based training and those taught with conventional instruction; the difference in outcomes between groups using video tutorials and those using audio-only media; and the interaction between training methods and media types in shaping learning outcomes. The study also compares the effectiveness of various combinations, such as creative movement with video tutorials versus conventional methods with audio or video, and creative movement with audio versus video tutorials. These comparisons are intended to identify which instructional configurations best support children's recognition of traditional dance, offering insights into effective strategies for culturally meaningful early childhood education.

Methods

Design

This study employed a 2x2 factorial experimental design to examine the interaction between training methods and learning media. The design involved two types of training methods, namely creative movement and conventional exercises, combined with two types of instructional media: video tutorials and audio recordings. Participants were divided into four treatment groups based on these combinations. This structure allowed for the analysis of both the individual and combined effects of the variables on children's ability to recognize traditional Indonesian dance.

Table 1. 2x2 Factorial Treatment Design

Conventional Exercise
Method (Control Group)
GROUP A2B1

Training Method	A1	A2
	With Creative Movement	Conventional Exercise
Learning Media	(Experiments Group)	Method (Control Group)
Video Tutorial	Training method through sports	Conventional Training Methods
(Experiments Group)	approach with Creative movement	and Video Tutorials
	and Video Tutorials	
B2	GROUP A1B2	GROUP A2B2
Audio	Training method through sports	Conventional training methods
(Control Group)	approach with Creative movement	and audio media
(Control Gloup)	and Audio media	and addio media

This table presents the layout of the factorial experiment design, dividing participants into four treatment groups based on the combination of training methods (creative or conventional) and instructional media (video or audio). It serves as the framework for interpreting the effects analyzed in the Results section. The interaction analysis between training method and media showed the A1B1 group (creative movement + video tutorial) achieved the highest mean score, suggesting that the synergy of visual media and active physical training significantly boosts recognition ability in young children.

Table 2. Group activities

No	Activities	Time Allocation	Group 1 (A ₁ B ₁₎	Group 2 (A ₁ B ₂)	Group 3 (A ₂ B ₁)	Group 4 (A ₂ B ₂)
1	Opening	3	х	Х		
2	Introduction	5	х	Х		
3	Video Tutorial	5	х	х	Χ	
4	Warming Up	7	х	Х		
5	Core Exercise	30	х	Х	Χ	Х
6	Cooling Down	3	х	Х		
7	Closing	2	Х	Х		
	Minutes	55	55	50	35	30

Population and Sample.

The target population was kindergarten group B children in Pondok Aren District, South Tangerang, with Inclusion criteria: schools that previously have never held traditional dance activities. Cluster random sampling was used, with 43 children selected from two kindergartens. These findings are particularly relevant as the participants, selected based on their lack of prior dance exposure, showed significant gains, confirming the effectiveness of introducing traditional dance through structured intervention even among complete novices.

Instruments

Three validated instruments were employed: 1) The introduction of the traditional dance Recognition Scale of children is the result of observations of the basic abilities of dancing traditional children's dances referring to the motor skills of children aged 5-6 years: ability to move following the rhythm of music, balance of motion, coordination of motion, the ability to perform dance movements, completely, flexibility; 2) The creative movement in this study is a movement play design using a sports approach. The sports approach used consists of knowledge of the material related to the traditional dance to be taught (cognitive stage). The knowledge provided by watching video. This video was made by researchers based on the themes of the introduction of the area of origin of the dance, West Sumatra. Then warm-up before practice, core exercises, and cool-downs. The core exercise is the dance being learned. Warming up and cooling down in the form of play movement using a storytelling method so that children move following the story being told.; 3) Instructional media is a video tutorial. Video tutorial is a video that contains steps in carrying out traditional dances, already exists and was made by a traditional dance studio from West Sumatra.

Procedure

Each group received pre-tests, interventions (training method and media combination), and post-tests. Creative movement sessions included warm-up and cool-down using play movement by a storytelling method.

The design of the Play Movement is as illustrated in the figure below:

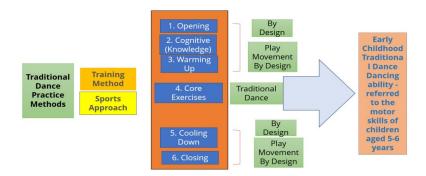


Figure 1. Design of Exercise Method through Sports Approach with Play Movement.

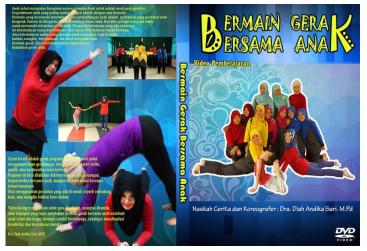


Figure 2. Teachers guide to 'Creative Movement warm-up and cool-down.

Data Analysis

The data analysis in this study included a normality test using the Lilliefors method and a homogeneity test using Bartlett's test to ensure the assumptions for parametric analysis were met. Hypothesis testing was conducted using a two-way ANOVA, followed by Tukey Post Hoc analysis to identify specific group differences. The factorial ANOVA results indicated significant main effects for both the training method and the learning media, as well as a meaningful interaction between the two variables. Further analysis using the Tukey test confirmed that the A1B1 group, which combined creative movement with video tutorials, achieved the highest performance, highlighting the effectiveness of integrating visual media with movement-based instruction.

Table 3. Theme of Cognitive and Play Movement Materials Design Traditional Dance from West Sumatra

No.	Regional Knowledge Materials of Dances	Play Movement - Warming	Play Movement - Cooling Down						
IVO.	(Cognitive Development)	up							
1	West Sumatra Highlight	Theme 1. Myself	Standing						
2	Tourist Attractions in West Sumatra	Theme 2. Animals	Sitting						

No.	Regional Knowledge Materials of Dances (Cognitive Development)	Play Movement - Warming up	Play Movement - Cooling Down
3	Traditional House: Rumah Gadang	Theme 3. Nature	Standing
4	Traditional Food	Theme 4. Friendship	Sitting
5	West Sumatra customs	Theme 1. Myself	Standing
6	West Sumatra Souvenirs	Theme 2. Animals	Sitting
7	West Sumatra Traditional Music	Theme 3. Nature	Standing
8	West Sumatra Traditional Dance	Theme 4. Friendship	Sitting

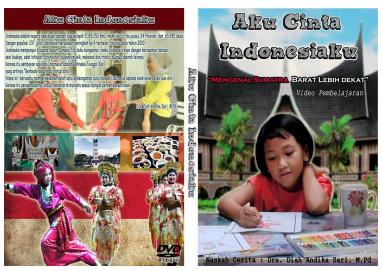


Figure 3. Cognitive knowledge for students about the region whose dance they are learning.

To combined between the training method and learning media (Video Tutorial), the treatment design in this study can be described as follows:

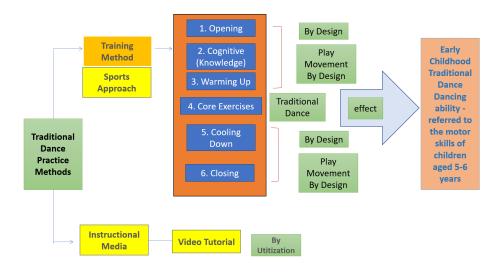


Figure 4. The effect of training methods and learning media on the ability to recognize traditional Indonesian dances for children aged 5-6 years.

Result

This section presents the findings from the 2×2 factorial experimental design that evaluated how two types of training methods creative movement based on a sports approach and conventional methods and two instructional media video tutorials and audio affected the ability of children aged 5-6 to recognize traditional Indonesian dance. The study was conducted with

43 children from two kindergartens in South Tangerang who had no prior exposure to formal dance instruction or related multimedia content. Their recognition abilities were assessed using a validated scale developed by early childhood education experts, covering components such as movement sequence, rhythmic awareness, and spatial coordination. Each group received pretests and posttests after undergoing a series of structured interventions as outlined in the Method section.

This section presents findings derived from the 2×2 factorial experimental design that examined the influence of training methods (creative movement vs. conventional method) and instructional media (video tutorials vs. audio) on children's recognition of traditional dance. The analysis focuses on the main effects of each independent variable and their interaction, followed by detailed pairwise comparisons using the Tukey HSD test.

Data processing was carried out by normality test with Liliefors test, and homogeneity test with Bartlett test. For hypothesis testing, two-way analysis of variance / ANOVA is carried out, then to test the interaction is carried out with the Tukey test. Recapitulation of data from statistical calculations is described in the table below:

Table 4. Recapitulation of Statistical Calculation Results and Scores of Abilities to recognize traditional Indonesian dances for Early Childhood Children

Research	_	Sco	ore	Mean	Median	Mode	Variants	Standard
Group	n	Max	Min	Mean	Median	Mode	variants	Deviation
A1	20	134.00	91.00	112.95	114.00	128.00	218.37	14.78
A2	23	123.00	85.00	105.83	106.00	122.00	101.70	10.08
B1	21	134.00	85.00	113.90	115.00	128.00	196.29	14.01
B2	22	123.00	90.00	104.59	104.00	91.00	98.63	91.00
A1B1	10	134.00	112.00	125.20	126.50	128.00	43.96	6.63
A1B2	10	114.00	91.00	100.70	99.50	91.00	83.57	9.14
A2B1	11	122.00	85.00	103.64	106.00	107.00	109.45	10.46
A2B2	12	123.00	90.00	107.83	107.50		94.70	9.73

Table 4 shows the results of the normality test for each group using the Lilliefors test. All significance values exceed the $\alpha = 0.05$ threshold, indicating that the pretest and posttest score distributions for each treatment group followed a normal distribution. This result justified the use of parametric statistical tests in the subsequent analysis. Furthermore, the analysis requirements test was carried out to test the normality and homogeneity of the data. From the data normality test with the Lielifors test, it was found that all data were normal with the following description

Table 5. Summary of normality test results with Lieliefors Test

Sample Group	Sample (N)	L _{count}	L_{table} ($\alpha = 0.05$)	Conclusion
A1	20	0.1106	0.1900	Normal
A2	23	0.0670	0.1790	Normal
B1	21	0.1000	0.1860	Normal
B2	22	0.0847	0.1820	Normal
A1B1	10	0.1478	0.2580	Normal
A1B2	10	0.1673	0.2580	Normal
A2B1	11	0.1250	0.2490	Normal
A2B2	12	0.0754	0.2420	Normal

Table 5 presents the results of the homogeneity test using Bartlett's test. The obtained significance value was greater than 0.05, which confirms that the data variances among the groups are homogeneous. This homogeneity validates the assumptions required for the twoway ANOVA used in hypothesis testing. While testing the data requirements of the homogeneity test with the Bartlett test, the results show that the data is homogeneous with the following description:

				<u> </u>	
Sample Group	db	S²	log S ²	dk S²	dk log S²
A1B1	9	43.9556	1.6400	395.6000	14.76
A1B2	10	109.4546	2.0400	1,094.5500	20.40
A2B1	9	83.5667	1.9200	752.1000	17.28
A2B2	11	94.697	1.9800	1,041.6700	21.78
	39	•		3,283,9200	74.22

Table 6 summarizes the mean and standard deviation scores of traditional dance recognition across the four experimental groups. It clearly shows that Group A1B1 (Creative Movement + Video) achieved the highest mean score, followed by A1B2, A2B1, and A2B2. These descriptive statistics support the conclusion that both training method and instructional media contribute meaningfully to improved performance.

Table 7. Summary of Homogeneity Test Results

Sample Group	Variance	F _{count}	$F_{\text{table}} (\alpha = 0.05)$	Conclusion
A1	218.37	- 2.15	2.85	Цотодопосия
A2	101.70	_ 2.15	2.03	Homogeneous
B1	196.29	- 1.99	2.88	Цотодопосия
B2	98.	1.99	2.00	Homogeneous

Table 7 reports the two-way ANOVA results. The analysis revealed statistically significant main effects of training method and instructional media on traditional dance recognition ability (p < .05), as well as a significant interaction effect (p < .01). This suggests not only that each factor has an independent influence, but also that their combination amplifies the learning outcome. After all the analysis requirements tests are met, further analysis is carried out, namely conducting hypothesis testing analysis.

Hypothesis testing in this study was carried out using analysis of variance and continued with the Tuckey test, if there was interaction in the test. Two-way analysis of variance was used to test the *main effect* and *interaction effect* between training methods and learning media on the scores of early childhoods. Indonesian traditional dance recognition skills

Table 8. Variance Analysis Results

Source of Variance	JK	dk RJK Fcount	Ftal	ble		
Source of variance	JK	UK	NJK	Count	$\alpha = 0.05$	a = 0.01
Between Columns	542,91	1	542,91	6,45 *	4,09	7,33
Between Lines	932,04	1	932,04	11,07 **	4,09	7,33
Interaction	2170,30	1	2170,30	25,78 **	4,09	7,33
In Group	3283,91	39	84,20			
Total Reduced	6929,16	42				

Table 8 presents the results of the post hoc Tukey HSD test, which compared all possible pairs of group means. The findings confirmed that Group A1B1 performed significantly better than all other groups, reinforcing the conclusion that the combination of creative movement and video tutorials is the most effective method for teaching traditional dance recognition in early childhood.

Description:

* = significant

** = highly significant dk = degrees of freedom JK = sum of squares

RJK = mean number of squares

Based on the results of the two-way Anava analysis, it was found that: First, Differences in the ability to recognize traditional Indonesian dances between experimental groups with Creative Movement training methods and Control groups with conventional training methods.

Based on the results of the analysis of variance at a significant level $\alpha = 0.05$, obtained F $_{count} = 6$. 4.45 and F $_{table} = 09$. Thus F $_{count} > F_{table}$, so Hit $_{0}$ is rejected, so it can be concluded that overall, there is a significant difference between the creative motion training method and the on the conventional training method score of the ability to recognize traditional Indonesian dance in early childhood. In other words, the creative movement training method (X = 112.95; S = 14.78) is better than the conventional training method (X = 105.83; S = 10.08). This means that the research hypothesis stating that the overall creative motion training method is better than the conventional training method can be accepted. In other words, the theory that programmed training, such as sports training, can affect the improvement of abilities. In addition, using this approach makes children more prepared to enter the core movement training stage. Fun play movements make children more ready to do traditional dance exercises. The empirical fact is that children look curious and enthusiastic about the knowledge material, look happy when with warming up play movements. So that finally the learning process of dancing traditional dances becomes more fun and flowing.

Second, Differences in the ability to recognize traditional Indonesian dances between the experimental group who received a tutorial video with Control groups that used audio media. Based on the results of the analysis of variance at a significant level $\alpha=0.01$, obtained F $_{count}=11.7.07$ and F $_{table}=33$. Thus, F $_{count}>$ F $_{table}$, so H $_{o}$ is rejected, it can be concluded that overall, there is a real difference between the use of Video Tutorial media and audio media on the score of the ability to recognize traditional Indonesian dances in early childhood. In other words, Video Tutorial media (X = 113.90; S = 14.01) is better than audio media (X = 10459; S = 9.93). This means that the research hypothesis which states that overall, the Video Tutorial media is audio media can be accepted better than the. This is in accordance with the theoretical reference which states that tutorial video media is good for learning related to motion. The empirical fact is that children look excited to see the model of Tutorial Video.

Third, there is an interaction effect between the use of training methods and learning media on children's traditional dance skills. Based on the results of the analysis of variance on the on the interaction between training methods and learning media score of the ability to recognize traditional Indonesian dances in, it can be seen in the Anova calculation table above, that the price of F early childhood_{count} interaction = 25.78 and F _{table} = 7.33. It appears that the function $F_{count} > F_{table}$, so Ho is rejected. So, it can be concluded that there is an interaction between the training method and learning media on the score of the ability to recognize traditional Indonesian dances in early childhood. They can be interaction between the two variables seen in the figure below:

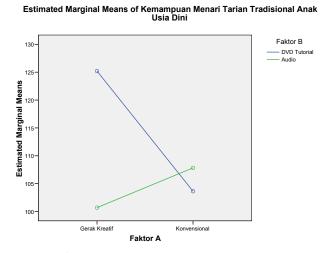


Figure 5. Interaction Plot of Estimated Marginal Means between Training Methods and Learning Media on Early Childhood Traditional Dance Recognition Ability

With the test of the interaction, then further tests need to be done. The results of further tests can be seen in the following table:

Table 10. Summary of Tukey Test Calculation Results

No.	Compared Group	Dk		t _{tal}	ble
NO.	Compared Group	DK	tcount	$\alpha = 0.05$	$\alpha = 0.01$
1	A_1B_1 with A_2B_1	39	5,38 **	1,68	2,43
2	A_1B_2 with A_2B_2	39	1,81 *	1,68	2,43
3	A_1B_1 with A_1B_2	39	5,97 **	1,68	2,43
4	A_2B_1 with A_2B_2	39	1.09 ns	1,68	2,43

Description:

= Significant

= Highly significant

= non-significant ns

Table 8 provides the results of the Tukey HSD test comparing group means. The table confirms statistically significant differences between the A1B1 group and all other groups except A2B1 and A2B2, which were not significantly different. These comparisons reinforce the interaction effect found in the ANOVA and highlight the superior performance of children receiving creative movement training via video.

Fourth, Differences in the ability to recognize traditional Indonesian dance in the experimental group that received video tutorial media with the creative movement training method with the group of children who received the conventional training method. The score of the ability to recognize traditional Indonesian dances of early childhood who received the creative motion training method with media Video Tutorial (A₁B₁) is higher than the score of the ability to recognize traditional Indonesian dances of early childhood who received the conventional training method with media Video Tutorial (A₂B₁₎, obtained t count = 5.38 and t table = 2.43. Thus, t_{count} is greater than t_{table} , so Ho is rejected, so it can be interpreted that there is a difference in the real between the results of the training method creative movement training method and the conventional training method. In other words that children who received treatment with media Video Tutorial and received creative motion training method treatment (X = 125.20; S = 6.63) is better than those who received conventional training method treatment (X = 103.64; S = 20.46) on the score of the ability to recognize traditional Indonesian dance in early childhood. Thus, the research hypothesis stating that the Video Tutorial learning media treated with the creative motion training method is better than those treated with the conventional training method on the score of the ability to recognize traditional Indonesian dances in early childhood can be accepted. The results of this study are in accordance with theoretical references which state that structured training methods and Video Tutorials are very well used in learning related to motion.

Fifth, Differences in the ability to recognize traditional Indonesian dance in the control group of children who received audio learning media with conventional training method treatment and those who received creative movement training method treatment.

The score of the ability to recognize traditional Indonesian dances of early childhood who received the creative motion training method with audio media (A₁B₂) was compared with the score of the ability to recognize dances traditional Indonesian of early childhood who received the conventional training method with audio media (A_2B_2) , obtained t (table count) = 1.81 and t 1.68. Thus, t_{count} is greater than t_{table} , so Ho is rejected, so it can be interpreted that there is a difference in real between training methods conventional training methods and creative movement training methods. In other words, children treated with audio media and treated with conventional training methods (X = 107.83; S = 9.73) are better than those treated with creative motion training methods (X = 100.70; S = 9.14) on the score of the ability to recognize traditional Indonesian dances in early childhood. Thus, the research hypothesis stating that audio learning media treated with conventional training methods are better than those treated with creative motion training methods on the score of the ability to recognize traditional dances Indonesian in early childhood can be accepted.

Six, Differences in the ability to recognize traditional Indonesian dance in the experimental group, children who used the creative movement training method with video tutorials and those who used audio media (A_1B_1) .

Compared to the score of the ability to recognize traditional Indonesian dances of early childhood who received the treatment of creative movement training methods with audio media (A_1B_2), obtained t count = 5.97 and t table = 2.43. Thus, tcount is greater than table, so Ho is rejected, so it can be interpreted that there is a difference in real between learning media Video Tutorial media and audio media in the group of children who received the treatment of creative movement training method. In other words, children who are treated with creative movement training methods with media Video Tutorial (X = 125.20; S = 6.63) are better than those who use audio media (X = 100.70; S = 9.14) on the score of the ability to recognize traditional Indonesian dances in early childhood. Thus, the research hypothesis stated that the creative movement training method with tutorial video media is in early childhood can be accepted better than those using audio media on the score of the ability to recognize traditional Indonesian dance.

Seventh, Differences in the ability to recognize traditional Indonesian dance in the control group, children who used conventional training methods with audio media compared to those who used video tutorials (A_2B_1).

Compared to the score of the ability to recognize traditional Indonesian dances of early childhood who received conventional training methods with audio media (A_2B_2), obtained t count = 1.09 and t table = 1.68. Thus, tcount is smaller than ttable, so Ho it is accepted, so can be interpreted that there is difference in no real between learning media Video Tutorial media and audio media in the group of children treated with conventional training methods. In other words, the children who received the creative movement training method with audio media (X = 107.83; S = 9.73) were not significantly better than those who used media Video Tutorial (X = 103.64; S = 10.46) on the score of the ability to recognize traditional Indonesian dances in early childhood.

Thus, the research hypothesis stating that conventional training methods with audio media are better than those using tutorial video media on the score of the ability to recognize traditional Indonesian dances in early childhood cannot be proven.

Discussion

Integrating traditional dance as a motor activity in early childhood education has shown significant effects on improving gross motor skills and movement coordination among children. This study demonstrates that a sports-based training approach using creative movement offers a joyful and developmentally appropriate learning experience. The findings reaffirm previous research showing that systematic dance activities enhance children's ability to adjust body movements to musical rhythms, improve balance, and strengthen eye-hand-foot coordination (Sari, 2024a). In other traditional dances, the Yapong dance, a traditional Betawi performance, incorporates movements that strengthen kinesthetic intelligence, including turning, balancing, standing on one or two legs, and coordinating eye-hand movements (Sari & Nurfitriah, 2024). This confirms that dance learning should follow core principles of motor and sports activities, including readiness, individual variability, and structured warming-up and cooling-down routines (Farinelli et al., 2021).

Physical movement is the first non-verbal language for children. Training using a sports approach elicited enthusiasm and joy among children during warm-ups that used creative movement and storytelling. This aligns with literature describing creative movement as expressions of a child's emotions and personality, performed freely and spontaneously (Amerius-Sargeant, 2023). It includes exploration of basic elements such as space, time, and force and can be supported by props such as scarves, hoops, beanbags, or parachutes (Richard et al., 2021). Creative movement combines non-verbal

expression with symbolic meaning, offering children opportunities to explore problems physically and imaginatively (León et al., 2024).

Beyond its expressive function, creative movement enhances sensory sensitivity, social awareness, body control, concentration, and overall personality development (Sutapa et al., 2021). These benefits correspond with the developmental needs of children aged 5–6, including large-muscle activity, manipulation of objects, expression through bodily motion, and engaging in brief, high-intensity play. Creative movement can be naturally stimulated using music and poetry tailored to the intended learning goals (Plevin & Zhou, 2020). Complementary approaches, such as reading aloud during yoga-inspired movement or storytelling during dance, have been shown to enhance enjoyment and performance (Sari & Juniasih, 2025; Juniasih, 2015).

The use of instructional videos as part of the sports-based training method provided thematic cultural knowledge related to the Minang dance from West Sumatra. Short video segments introducing cultural contexts—such as Rumah Gadang, regional music, and customs—sparked children's fascination and sustained attention throughout the training (Rallis et al., 2020). Multimedia learning functions to motivate, inform, and guide learners (Mutia et al., 2020). Its effectiveness depends not only on the media format but also on the active involvement of the teacher (M. Chen & Xiao, 2022). Audiovisual media, particularly video tutorials, provide rich sensory input and can illustrate complex motions that support motor learning in children (Abdulrahaman et al., 2020).

Tutorial videos serve as technology-based instructional materials that combine auditory and visual signals in motion sequences. These tools are especially helpful in motor learning because they display models, regulate movement pacing, and offer feedback visually (Mutagi & Dwi Nurcahyaningtias, 2021; P. Chen et al., 2020; Stevi, 2020). While videos offer advantages such as repeatability and clarity, they also present limitations including high production costs, compatibility issues, and potential difficulties in spatial orientation (Noetel et al., 2021). For example, mirror positioning in videos can confuse children when trying to mimic left-right movements. Children learn better with live demonstrations (Sari, 2024b), suggesting that spatial concepts are internalized more concretely than abstractly at this age (Darnis, 2018). Additional challenges include the difficulty of recruiting child performers for instructional videos (Antara Made Vina Arie; Iju, Angelina Sonia, 2022).

Despite these challenges, tutorial videos remain effective for conveying cognitive, psychomotor, and affective dimensions of movement. They support movement recognition, exemplify kinesthetic principles, and can elicit emotional engagement when used with deliberate pedagogical strategies (Fussalam et al., 2019). The findings of this study further reinforce that combining visual instruction with active physical practice fosters higher recognition of traditional dance in early childhood compared to audio-only approaches or conventional training models.

Although the results are promising, this study has several limitations. The sample size was limited to 43 children from two kindergartens in Pondok Aren, South Tangerang, which restricts the generalizability of the findings. The focus on a single traditional dance also limits applicability across diverse cultural forms. Moreover, the short duration of the intervention might not capture long-term retention or transfer of skills. Future research should consider longitudinal designs and include broader cultural variations to determine sustained impacts. Mixed-methods approaches could also be employed to explore affective dimensions, motivational factors, and teacher reflections. Such efforts would provide a more holistic understanding of how creative movement and media enhance cultural learning and identity development among young children.

Interdisciplinary, multidisciplinary, and transdisciplinary science.

Traditional dance in early childhood is an activity that involves many aspects of child development. There are so many benefits of dance, especially traditional dance. On early childhood development make it necessary for this activity to be given to early childhood. The problem of traditional dance in early childhood raised in this research is in the learning process. Where the problem in the learning process is reviewed in terms of methodology and learning media. In interdisciplinary science, there is intensive interaction between one or more disciplines, whether directly related or not. This can be seen from teaching and research programs. Meanwhile, the multidisciplinary approach is the merging of several disciplines to jointly address certain problems. And the Transdisciplinary approach is the development of a new theory or axiom by building relationships between various disciplines. Therefore, this research conducts theoretical studies in an interdisciplinary, multidisciplinary and transdisciplinary manner.

This study operationalizes the principles of interdisciplinary and transdisciplinary learning by merging four key domains: early childhood pedagogy, physical education, media technology, and traditional dance studies. The intervention design reflects early childhood educational values through its use of developmentally appropriate practices such as play-based and imaginative motor activities. From the field of physical education, the study adopts structured movement strategies rooted in a sports approach to enhance gross motor skills. Media technology is embedded through the integration of video tutorials, which serve not only as instructional tools but also as visual supports that align with how young children learn. Traditional dance studies contribute the cultural content and movement sequences central to the learning objectives. By combining these domains, the research offers a holistic model that supports cognitive, motor, and cultural development in early learners. It demonstrates how interdisciplinary approaches can move beyond theory into practical classroom applications that are both engaging and pedagogically sound.



Figure 5. Interdisciplinary, Multidisciplinary, Transdisciplinary Science in Research on the Effect of Training Methods and Learning Media on the Ability recognize traditional Indonesian dances for Early Childhood.

Figure 5 illustrates the estimated marginal means of traditional dance recognition scores across the four treatment groups. The graph clearly shows that the A1B1 group (Creative Method + Video Tutorial) achieved the highest mean score, followed by A1B2 (Creative Method + Audio), A2B1 (Conventional Method + Video), and A2B2 (Conventional Method + Audio) in descending order. This pattern confirms the presence of a meaningful interaction effect, as the effectiveness of each instructional media varied depending on the training method used. The sharp difference between A1B1 and the other groups suggests a synergistic benefit when combining creative movement and visual media. These findings are consistent with the theoretical foundation and the procedural structure described in the Method section, where visual and kinesthetic engagement were expected to enhance children's learning outcomes.

Conclusion

This study affirms that both the training method and the type of instructional media significantly influence children's ability to recognize traditional dance. Children who received creative movement training demonstrated notably higher recognition scores compared to those taught using conventional methods, highlighting the pedagogical value of integrating imaginative, play-based motor activities in early childhood education. Furthermore, children exposed to video tutorials outperformed those using audio-only materials, reinforcing the effectiveness of visual media in facilitating motor learning. The combination of creative movement and video tutorials (Group A1B1) produced the most substantial outcomes, suggesting a strong interaction effect that amplifies learning when physical engagement is paired with multimedia instruction. These findings validate the factorial experimental design and align with embodied learning theories that emphasize sensory-rich, developmentally appropriate strategies for young learners.

While these results offer promising insights, they should be interpreted with caution due to the study's limited sample size, narrow cultural scope, and short intervention period. Nonetheless, the research contributes meaningfully to early childhood education by presenting a replicable model that integrates creative movement and digital media in teaching traditional arts. This interdisciplinary approach—bridging physical education, media technology, and cultural pedagogy—can inform educators, curriculum designers, and policymakers seeking to develop culturally responsive and engaging learning environments. Future studies are encouraged to adopt longitudinal and mixed-methods designs to explore long-term impacts on children's cultural identity, emotional development, and sustained engagement with traditional heritage.

Declarations

Author Contribution Statement

Authors 1 and 2 were responsible for developing the research instruments, writing the manuscript, conducting the study, and analyzing the collected data. Authors 3 and 4 contributed to data analysis, instrument validation, and data entry.

Data Availability Statement

Data are available from the corresponding author upon reasonable request.

Funding Statement

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declaration of Interest Statement

The authors declare no conflict of interest.

References

- Abdulrahaman, M. D., Faruk, N., Oloyede, A. A., Surajudeen-Bakinde, N. T., Olawoyin, L. A., Mejabi, O. V., Imam-Fulani, Y. O., Fahm, A. O., & Azeez, A. L. (2020). Multimedia tools in the teaching and learning processes: A systematic review. *Heliyon*, *6*(11), e05312. https://doi.org/10.1016/j.heliyon.2020.e05312
- Amerius-Sargeant, N. (2023). Music. *Jung Journal, 17*(4), 3–18. https://doi.org/10.1080/19342039.2023.2258751
- Anderson, D. I. (2024). Mastering motor skills: The contributions of motor learning and motor development to the growth and maturation of kinesiology. *Kinesiology Review, 13*(1), 28–41. https://doi.org/10.1123/kr.2023-0051
- Antara, M. V. A., & Iju, A. S. P. A. P. (2022). Pengembangan media video pembelajaran dalam stimulasi kemampuan tarian modern untuk anak usia dini. *Jurnal Bimbingan dan Konseling Indonesia, 7*(2), 1–8.
- Badaruddin, S., Masunah, J., & Milyartini, R. (2024). Two cases of dance composition learning using technology in dance education study program in Indonesia. In *Proceedings of the International Conference on Education and Social Science (ICESS 2023)* (pp. 549–561). Yayasan Penerbit Muhammad Zaini. https://doi.org/10.2991/978-2-38476-100-5 70
- Chen, M., & Xiao, X. (2022). The effect of social media on the development of students' affective variables. *Frontiers in Psychology, 13*, Article 1010766. https://doi.org/10.3389/fpsyg.2022.1010766
- Chen, P., Zhang, Y., Tan, M., Xiao, H., Huang, D., & Gan, C. (2020). Generating visually aligned sound from videos. *IEEE Transactions on Image Processing, 29*, 8292–8302. https://doi.org/10.1109/TIP.2020.3009820
- Christopher, N. (2024). Problem solving in dance/movement therapy research: Developing an intervention protocol for adults living with treatment resistant depression. *American Journal of Dance Therapy*, 46(2), 167–188. https://doi.org/10.1007/s10465-024-09403-1
- Coimbra, M., Cody, R., Kreppke, J.-N., & Gerber, M. (2021). Impact of a physical education-based behavioural skill training program on cognitive antecedents and exercise and sport behaviour among adolescents: A cluster-randomized controlled trial. *Physical Education and Sport Pedagogy, 26*(1), 16–35. https://doi.org/10.1080/17408989.2020.1799966
- Czyż, S. H., & Coker, C. A. (2023). An applied model for using variability in practice. *International Journal of Sports Science & Coaching, 18*(5), 1692–1701. https://doi.org/10.1177/17479541231159473
- Darnis, S. (2018). Aplikasi Montessori dalam pembelejaran membaca, menulis dan berhitung tingkat permulaan bagi anak usia dini. *Jurnal Caksana, 1*(1). Universitas Trilogi.
- Datti, I. P., Silva, R., & Ejnisman, L. (2024). The envelope of function: Revisiting the theory with new concepts—A narrative review. *Journal of the American Academy of Orthopaedic Surgeons*, *32*(21), e1090–e1101. https://doi.org/10.5435/JAAOS-D-23-00433
- Dewi, J. K. (2020). Gerak dasar tari untuk anak usia dini. *Zuriah: Jurnal Pendidikan Anak Usia Dini,* 1(2), 115. https://doi.org/10.29240/zuriah.v1i2.2017
- Farinelli, F., de Rezende, A. S. C., Fonseca, M. G., Lana, Â. M. Q., Leme, F. de O. P., Klein, B. de O. N., Silva, R. H. P., de Abreu, A. P., Damazio, M. de J., & Melo, M. M. (2021). Influence of stretching exercises, warm-up, or cool-down on the physical performance of Mangalarga Marchador horses. *Journal of Equine Veterinary Science, 106*, 103714. https://doi.org/10.1016/j.jevs.2021.103714
- Feng, H., Zhao, X., & Zhang, X. (2022). Automatic arrangement of sports dance movement based on deep learning. *Computational Intelligence and Neuroscience, 2022*, 1–14. https://doi.org/10.1155/2022/9722558
- Fussalam, Y. E., Lestari, R., & Anggelia, R. Y. (2019). A study of listening skills through movie: A review of the current literature. *Journal of Language Education and Development (JLed),* 1(2), 158–168. https://doi.org/10.52060/jled.v1i2.139

- Hartati, Aryanti, S., Destriana, & Pangestu, E. (2021). Uphill running exercise of speed on futsal extracurricular high schools. *Journal of Physics: Conference Series, 1832*(1), 012057. https://doi.org/10.1088/1742-6596/1832/1/012057
- Herdini, H., & Darmayanti, N. (2023). Analisis perkembangan motorik kasar melalui permainan menangkap dan melempar bola pada anak usia 5–6 tahun. *Edulnovasi: Journal of Basic Educational Studies, 4*(1), 112–122. https://doi.org/10.47467/edui.v4i1.4253
- Jazimi, I., & Munirah, M. (2020). Perkembangan mental anak dan lingkungannya. *Early Childhood Islamic Education Journal*, 1(1), 44–55. https://doi.org/10.58176/eciejournal.v1i1.22
- Juniasih, E. (2015). TARITA: Alternatif metode pendidikan seni tari untuk anak usia dini. *Jurnal Pendidikan Usia Dini*.
- León, M. P., Evangelio, C., González-Víllora, S., & Calderón, A. (2024). Creativity through embodied movement in expressive activities: Conceptualising a new pedagogical model. *Quest, 76*(3), 289–307. https://doi.org/10.1080/00336297.2024.2318778
- Liya, A., & Katoningsih, S. (2022). The development of learning the arts of dance to the ability of early childhood gross motor development. *Early Childhood Research Journal (ECRJ), 4*(2), 1–8. https://doi.org/10.23917/ecrj.v4i2.12107
- Maksymchuk, B., Gurevych, R., Matviichuk, T., Surovov, O., Stepanchenko, N., Opushko, N., Sitovskyi, A., Kosynskyi, E., Bogdanyuk, A., Vakoliuk, A., Solovyov, V., & Maksymchuk, I. (2020). Training future teachers to organize school sport. *Revista Romaneasca pentru Educatie Multidimensionala*, 12(4), 310–327. https://doi.org/10.18662/rrem/12.4/347
- Mutaqi, I., & Dwi Nurcahyaningtias, N. (2021). Peran bahan ajar dalam pembelajaran bahasa Arab. *Mahira, 1*(1), 63–72. https://doi.org/10.55380/mahira.v1i1.121
- Mutia, L., Gimin, G., & Mahdum, M. (2020). Development of blog-based audio visual learning media to improve student learning interests in money and banking topic. *Journal of Educational Sciences*, 4(2), 436–448. https://doi.org/10.31258/jes.4.2.p.436-448
- Newell, K. M. (2020). What are fundamental motor skills and what is fundamental about them? Journal of Motor Learning and Development, 8(2), 280–314. https://doi.org/10.1123/jmld.2020-0013
- Noetel, M., Griffith, S., Delaney, O., Sanders, T., Parker, P., del Pozo Cruz, B., & Lonsdale, C. (2021). Video improves learning in higher education: A systematic review. *Review of Educational Research*, *91*(2), 204–236. https://doi.org/10.3102/0034654321990713
- Orlandi, A., Cross, E. S., & Orgs, G. (2020). Timing is everything: Dance aesthetics depend on the complexity of movement kinematics. *Cognition*, *205*, 104446. https://doi.org/10.1016/j.cognition.2020.104446
- Plevin, M., & Zhou, T. Y. (2020). Creative movement with Te and Ch'i Global virtual and embodied connection during the COVID-19 pandemic. *Creative Arts in Education and Therapy, 6*(1), 61–71. https://doi.org/10.15212/CAET/2020/6/17
- Purwaningtyas, F. D., Septiana, Y., Aprilia, H., & Candra, G. (2023). Dampak penggunaan gadget terhadap perkembangan psikologi pada anak sekolah dasar. *Jurnal Psikologi Wijaya Putra (Psikowipa), 4*(1), 1–9. https://doi.org/10.38156/psikowipa.v4i1.84
- Rallis, I., Voulodimos, A., Bakalos, N., Protopapadakis, E., Doulamis, N., & Doulamis, A. (2020). Machine learning for intangible cultural heritage: A review of techniques on dance analysis. In *Artificial Intelligence Applications and Innovations* (pp. 103–119). https://doi.org/10.1007/978-3-030-37191-3 6
- Richard, V., Holder, D., & Cairney, J. (2021). Creativity in motion: Examining the creative potential system and enriched movement activities as a way to ignite it. *Frontiers in Psychology, 12*, Article 690710. https://doi.org/10.3389/fpsyg.2021.690710
- Rodríguez, S., Suarez-Cuervo, A. N., & León-Prieto, C. (2024). Exercise progressions and regressions in sports training and rehabilitation. *Journal of Bodywork and Movement Therapies*, 40, 1879–1889. https://doi.org/10.1016/j.jbmt.2024.10.026
- Saleh, R., Susanti, S. M., Muna, S., & Hertuni, F. (2024). Analisis permainan Kalego untuk mengasah

- kemampuan motorik kasar anak usia dini. *Murhum: Jurnal Pendidikan Anak Usia Dini, 5*(2), 1284–1293. https://doi.org/10.37985/murhum.v5i2.993
- Saptono, T., Sumintarsih, S., & Purwandono Saleh, R. A. (2021). Perbandingan latihan aerobik dan anaerobik terhadap tingkat imunitas atlet bolavoli melalui physical fitness test. *Jurnal Penjaskesrek*, 8(2), 172–188. https://doi.org/10.46244/penjaskesrek.v8i2.1536
- Sari, D. A. (2018). Improving early childhood teacher's dance ability in traditional dance through sport approach and tutorial video. *Proceedings of the International Conference on Early Childhood Education (ICECE 2017), 169*, 21–24.
- Sari, D. A. (2024a). Meningkatkan perkembangan motorik anak usia 5–6 tahun melalui tarian tradisional Minang, Tari Molah Manari. *Yaa Bunayya: Jurnal Pendidikan Anak Usia Dini,* 8(1), 84–92.
- Sari, D. A. (2024b). Pengaruh video tutorial terhadap kemampuan menari tarian tradisional anak 5–6 tahun. *Jurnal Anak Usia Dini Holistik Integratif (AUDHI), 7*(1), 58. https://doi.org/10.36722/jaudhi.v7i1.3040
- Sari, D. A., & Juniasih, I. (2025). Metode latihan bermain gerak untuk meningkatkan kemampuan menari tarian tradisional anak usia 5–6 tahun. *Journal of Childhood Education, 9*(1), 90–98. https://journalfai.unisla.ac.id/index.php/jce/article/view/2387
- Sari, D. A., & Nurfitriah, S. (2024). Enhancing kinesthetic intelligence in children between the ages of 5–6 through Yapong traditional dance. *Journal of Islamic Education Students, 4*(1), 95–106. https://doi.org/10.31958/jies.v4i1.12276
- Stevi, H. (2020). Need analysis of audio-visual media development to teach science materials for young learners. *Journal of Educational Technology and Online Learning, 3*(2), 152–167. https://doi.org/10.31681/jetol.672104
- Sutapa, P., Pratama, K. W., Rosly, M. M., Ali, S. K. S., & Karakauki, M. (2021). Improving motor skills in early childhood through goal-oriented play activity. *Children, 8*(11), Article 994. https://doi.org/10.3390/children8110994
- Tassignon, B., Verschueren, J., Baeyens, J.-P., Benjaminse, A., Gokeler, A., Serrien, B., & Clijsen, R. (2021). An exploratory meta-analytic review on the empirical evidence of differential learning as an enhanced motor learning method. *Frontiers in Psychology, 12*, Article 533033. https://doi.org/10.3389/fpsyg.2021.533033
- Tursina, A., Mahriza, R., & Ramaida, A. (2022). Tarian Ranup Lampuan: Meningkatkan perkembangan fisik motorik kasar anak usia dini. *Jurnal PG-PAUD Trunojoyo: Jurnal Pendidikan dan Pembelajaran Anak Usia Dini, 9*(2), 69–78. https://doi.org/10.21107/pgpaudtrunojoyo.v9i2.16478
- Zulfa, E. S. (2023). Pengaruh permainan tradisional lompat tali terhadap motorik kasar anak usia 5–6 tahun. *ATTAQWA: Jurnal Pendidikan Islam dan Anak Usia Dini, 2*(1), 15–26. https://doi.org/10.58355/attaqwa.v2i1.11