



The effectiveness of Lombok traditional games on increasing physical literacy of elementary school

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Received: 2 February 2023; Revised: 11 March 2023; Accepted: 8 April 2023

Abstract: Physical literacy has four components, one of which is the physical component. Increasing the physical component requires learning strategies implemented through physical education, one of which is the traditional Lombok game, which is an effective learning process for children. This research aims to test the effectiveness of traditional Lombok games in increasing physical literacy in elementary school students. This study used the Quasi Experimental Design research method (pretest and posttest control group design) involving 66 class IV students. It consists of two groups, namely, the control group and the intervention group. The intervention group (n = 33; 50% boys and girls) received a weekly 60-minute Lombok traditional game session provided by a local instructor trained in child care, whereas the control group (n = 33; 50% boys and women) received no additional treatment. Components of children's physical literacy were assessed using the PLAYbasic instrument before and after treatment. The results of the PL assessment of the pre-test control group were 42.7 in the emerging category, the post-test was 45.5 in the Emerging category, while in the experimental group the pre-test was 45.6 in the emerging category and the post-test was 65.1 in the Competent category, there was an increase in the experimental group. The experimental group using traditional Lombok games had a better level of physical literacy or the competent category than the control group. While the results of data analysis from the study showed the output of the Independent Samples Test, the Sig value was obtained. (2-tailed) = 0.000 < 0.05. Thus, the traditional Lombok games for grade IV students aged 9 years have a significant influence. Based on these results, it shows the importance of traditional Lombok game interventions that can provide benefits for developing and increasing appropriate physical literacy in later life.

Keywords: effectiveness, lombok traditional games, physical literacy, elementary school.

How to Cite: Sudarwo, R., Irmansyah, J., Mujriah, M., & Esser, B.K.N. (2023). The effectiveness of Lombok traditional games on increasing physical literacy of elementary school. *Jurnal Keolahragaan*, 11(1), 95-103. doi: <http://doi.org/10.21831/jk.v11i1.58316>



INTRODUCTION

It is believed that comprehending physical literacy can provide alternate resolutions in the future to counteract worldwide issues linked to the absence of personal motivation towards enhancing physical movement (Cornish et al., 2020; Irmansyah et al., 2021) The attention of physical education at elementary school students due to lack of movement which has an impact on degenerative diseases and other health problems, such as obesity, heart attacks, hypertension, cancer, and diabetes (Lovchinov et al., 2016) In addition, the majority lack participation in students' physical game activities which are sufficient to achieve motivational benefits in moving and a breakthrough strategy is needed to increase participation (Barnett et al., 2016) (Kurniawan et al., 2020). A few analysts state that expanding open air time can successfully constrain inactive behavior and inspiration to move (Bélanger et al., 2019). This difficulty also requires an effort in implementing learning (Metzler & Colquitt, 2021) that is appropriate and in accordance with physical education achievements for today's elementary school students.



Children's growth in the school setting necessitates that education equip kids to think critically, creatively, cooperatively, communicatively, and physically literate. (Wijaya et al., 2016). Physical literacy (PL) is a physical education learning that encourages students to have the motivation and ability to understand, communicate, apply knowledge, analyze movement critically in various ways and demonstrate flexibility of movement confidently, competently, and creatively (Balyi et al., 2013; Slade et al., 2019; Yu et al., 2021). Physical literacy is defined as motivation, self-confidence, physical competence, knowledge and understanding of values, and taking responsibility for maintaining physical activity goals throughout life (Brown et al., 2020; Cornish et al., 2020; Whitehead, 2007). Based on the Sport Index Development report, it shows that the national physical literacy index is 0.565, meaning that the level of achievement of physical literacy of 56% is at the lower limit of the medium category (Deputi Bidang Pembudayaan Olahraga Kementerian Pemuda dan Olahraga Republik Indonesia, 2021). Thus, it is necessary to increase physical literacy through various learning methods or strategies implemented through physical education.

Currently, interest in traditional children's games is not maximized, affecting the inability to acquire learned knowledge (Yoda, 2015). This has also affected the decline of children's play with the development of information technology and the era of automation that can be easily found such as televisions, computers, gadgets, and the Internet. Therefore, we need activities that are structured through games of skill. Developing traditional game learning models is an important aspect of the continuity of the learning process in schools and a means to promote traditional games that are being forgotten (Maryuni & Nasrulloh, 2022). As such, this study requires traditional games associated with residential areas, especially using traditional Lombok games (Alpen et al., 2022).

Traditional games are a way for children to have fun that is inseparable from everyday life. Traditional games have humanistic (Kancanadana et al., 2021) and cultural (Rakhman & Wibawa, 2019) values. Games are part of local knowledge, being an important entity for human dignity in society (Vitasurya, 2016). Traditional game is the child's most effective learning process, in a realistic educational environment and supporting the child's physical development (Gelisli & Yazici, 2015). Therefore, it is important to do so in a school setting where students can interact directly (Irmansyah et al., 2020). Traditional games can be considered as important mediators for physical, social and cognitive development in during elementary school and the school environment (Kacar & Ayaz-Alkaya, 2022).

The context of this study, physical literacy is learning the physical competence of Locomotor, Hope, Overhand Throw, Kick, Balance (Kriellaars, 2018), so that students have motivation in playing activities. However, current physical literacy research is predominant on the notion of physical literacy (Edwards et al., 2018). There is still not much exploration of its role in traditional games (Irmansyah et al., 2021) and research examining physical literacy is still rare (Friskawati & Stephani, 2021). The results of the research conducted (Friskawati & Stephani, 2021) suggests that research on physical literacy in Indonesia needs to be developed so that it becomes an important analysis focus in sports research, especially physical education with the potential to measure success of teaching to be included in the physical education curriculum in Indonesia.

According to this clarification, necessitates an educational method to enhance the physical literacy proficiencies of elementary school students., one of which is conducting research using the traditional Lombok game approach. In accordance with research conducted by (Kurniawan et al., 2020) (Tangkudung et al., 2019) states that traditional games can affect children's physical fitness. Research on physical literacy in Indonesia needs to be developed so that it becomes an important study focus in physical education learning (Friskawati & Stephani, 2021). In line with that, traditional games are a gateway to increasing physical literacy (Caldwell et al., 2020; Gustian et al., 2019). This makes traditional games the right alternative in developing physical literacy. Several studies on traditional Lombok games that have been explored through research (Irmansyah et al., 2021; Kurniawan et al., 2020; Mujriah et al., 2022) have not found their relevance and are focused on increasing children's physical literacy. This is the basis and logical justification, as well as the uniqueness of this study, because it accommodates various traditional Lombok games, such as *Ketik Jaran*, *Begelompongan*, *Kideng*, *Begatrik*, *Panji* (to mention a few). What's more, using traditional Lombok games is really needed by elementary school-age children (Kurniawan et al., 2020). Therefore, this research aims to determine the effectiveness of traditional Lombok games to increase physical literacy in elementary school-aged children.

METHOD

This quantitative descriptive study uses a Quasi Experimental Design with a pretest-posttest control group design (Sugiyono, 2017) (Tikkanen, 2017). The research location consisted of three elementary schools, on Lombok Island, NTB. The determination of research locations is based on elementary schools that had superior accreditation, because it is assumed that these schools had adequate physical education learning facilities and certified or professional quality teachers. The sampling technique used is random sampling with a total of 66 children in class IV consists of two groups, a control group and an intervention group. The intervention group consisted of 33 children $\geq 80\%$ 5 traditional Lombok games will be evaluated on PL prior to and after treatment. ($n = 33$; mean age = class IV from 3 locations). The control group included 33 students drawn at random from three schools in separate districts. This study has been approved by the Institute for Research and Community Service (LPPM), Mandalika University of Education and has obtained written consent from the parents or guardians of each child to provide consent which includes information about the child's biodata.

Children in the intervention group received 12 weeks of an orally supported Lombok traditional game-based PL program consisting of two sessions (approximately 60 minutes) per week, provided by a locally trained instructor (eg sports and recreation teacher, or sports instructor). Throughout the program, all teachers get a three-day training session as well as material assistance. The program offers a variety of fun activities using 15 traditional Lombok game themes, which have been validated and proven to be effective in providing meaningful and enjoyable physical education and physical activity learning experiences for elementary school-age children (Kurniawan et al., 2020)

The PL of children is measured using the PL test (Kriellaars, 2018) before and after the intervention for 12 weeks. The test is carried out outdoors, with PL testing which includes the following test items: Run there and back, Hop, Overhand throw, Kick ball, and Balance walk backwards (Kriellaars, 2018). In accordance with the PL test applied, it can be classified that PL is included in the basic skill assessment (Kriellaars, 2018), so the assessment is carried out using the PLAYtools instrument. PL assessment using PLAYtools has been carried out in several previous studies. (Hilary A. et al., 2020) emphasize that the PLAYtools instrument shows a balanced relationship between one another, strong reliability between assessments, and good constructs, as well as convergent validity. In line with research from (Stearns et al., 2018) who explained that for children and adolescents in Northern Canada, PL assessments using the PLAYtools instrument were considered the most accurate, especially in aspects of motor competence or movement skills. In the Indonesian context, research from (Suntoda et al., 2021) has used the PLAYtools instrument in its research framework, and PL assessments show that it fits the characteristics of elementary school children in Indonesia. Some of the results of these studies have proven that the PLAYtools instrument used in this study has validity, reliability, and accuracy in measuring/assessing PL of elementary school-age children.

Data from PL test results were analyzed to determine the distinction between initial assessment and final assessment. The information was analyzed with a statistical t-test utilizing the data processing software SPSS V-22. Previously, the researcher conducted a statistical descriptive analysis to provide a general picture of the child's physical literacy level. After that, the researcher conducted a prerequisite analysis test by testing normality and (Kolmogorov-Smirnov) and homogeneity (Levene-statistics). To know the difference between the mean PL test scores in the experimental and control groups, an analysis is performed using the Paired Differences Samples Test. The results of this analysis are presented in tabular form and are described in more depth in the discussion section.

RESULT AND DISCUSSION

The results of the physical literacy test for class IV students using the PLAY test instrument stands for Physical Literacy Assessment for Youth (Kriellaars, 2018). The results of the physical literacy assessment of class IV students have been visualized according to Figure 1.

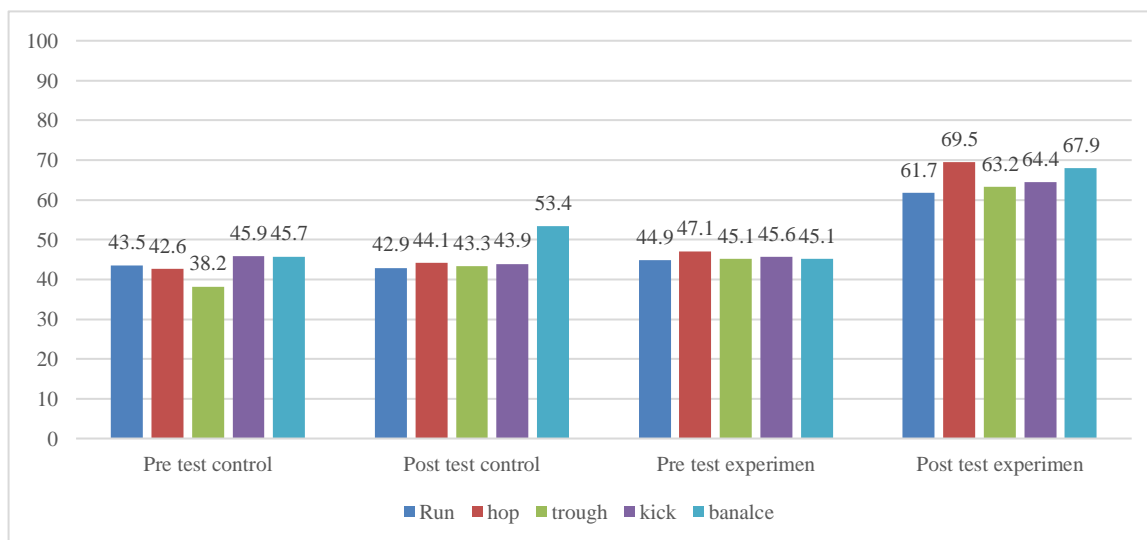


Figure 1. Bar Chart of Physical Literacy Test Results

Knowing the effectiveness of traditional Lombok games on increasing physical literacy for fourth grade elementary school students, the researchers implemented the quasi experimental design research method in control and experimental groups (Sugiyono, 2017). The experimental group used traditional Lombok games, while the control group used conventional methods. Following are the results of statistical descriptive data in the control and experimental groups in Table 1.

Table 1. Descriptive Statistics of Class IV Students' Physical Literacy Results

	N	Mean	Std. Deviation
Pre-test Experiment	33	45.58	1.41
Post-test Experiment		56.03	2.76
Pre-test Control	33	42.79	2.74
Post-test Control		45.52	2.93

Furthermore, to find out the data is normally distributed, a data normality test will be carried out in the control and experimental groups (Table 2) and a homogeneity test to find out a variant of the diversity of the data from two groups that are homogeneous or heterogeneous (Table 3).

Table 2. Physical Literacy Normality Test Results

Groups	df	Kolmogorov-Smirnov ^a	Shapiro-Wilk	Explanation
Pre-Test Experiment	33	0.16 > 0.05	0.19 > 0.05	Normal
Post-Test Experiment		0.12 > 0.05	0.21 > 0.05	Normal
Pre-Test Control		0.31 > 0.05	0.07 > 0.05	Normal
Post Test Control		0.21 > 0.05	0.08 > 0.05	Normal

Table 3. Physical Literacy Data Homogeneity Test Results

Result PL	Levene Statistic	df1	df2	Sig.	Explanation
Based on Mean	.708	1	64	.403	Homogen

Tables 4 and 5 show the posttest paired sample t-test and independent sample t-test findings for the experimental and control groups.

Table 4. The Result of Paired Sample T-Test

		Std. Error Mean	95% Confidence Interval of the Difference		T	df	Sig. (2-tailed)	Explanation
			Lower	Upper				
Parametric 1	Pre-test Experiment - Post-test Experiment	0.73	-4.22	-1.24	-3.74	32	.001	Sig
Parametric 2	Pre-test Control - Post-test Control	0.55	-20.57	-18.33	-35.32	32	.000	Sig

Table 5. The Result of Independent T-Test

	T-test for Equality of Means					Std. Error Difference	Explanation
	F	Sig.	t	df	Sig. (2-tailed)		
Equal variances assumed	0.7	0.4	-27.88	64	0.00	0.69	Sig
Equal variances not assumed			-27.88	63.76	0.00	0.69	Sig

Table 1 shows the average physical literacy test results in the control group for the pretest and the standard deviation after being given conventional treatment on the post-test results. The data shows that there is a difference in the average PL test results before and after being given treatment. In the same way, in the experimental group there were differences in the results of the pre-test and post-test given the traditional Lombok game treatment. The traditional Lombok game intervention has positive changes in increasing children's PL. It is proven by the results of the physical literacy test (Kriellaars, 2018) (lokomotor, hop, throwing kicking, balancing) which focuses on physical competence. Physical competence increases with age and is slightly higher for boys than for girls. Involvement in physical activity can improve children's physical abilities (Longmuir et al., 2015). Physical competence refers to an individual's ability to develop skills and movement patterns, and the capacity to experience a wide range of intensity and duration of movement. Enhanced physical competence allows one to participate in a variety of activities and physical settings (Brown et al., 2020). This concept is viewed as a tool for promoting physical activity in children (Barnett et al., 2022).

Table 4 results of the paired sample test which aims to find out whether there is a difference between the control group and the experimental group, showing that in parametric 1 Sig value. Two-tailed is $0.000 < 0.05$, we can conclude that there is a mean difference PL test results in paired control group using conventional treatment. Meanwhile, in Pair 2, the Sig.(2-tailed) value is $0.000 < 0.04$, so it can be concluded that there is a difference in the average PL test results in the experimental group in pairs using the traditional Lombok game treatment. Furthermore, on the results of the Independent Samples Test output above, the Sig. (2-tailed) = $0.000 < 0.05$. So, from the results of the data analysis the effectiveness can increase PL by using the traditional Lombok game rather than the conventional model. Lombok traditional games of elementary school students have a significant effect on the results of post-test control data processing with post-test experiments.

This study yields information that PL is the basis for a physically active future for school-age children to achieve (Caldwell et al., 2020). Coupled with (Rasnita et al., 2021) to increase physical literacy by school-age children (Longmuir et al., 2015) by playing traditional games. It can be said that children who participated in PL through traditional Lombok games made better progress in increasing PL compared to students in the control group. The increase in PL through traditional Lombok games is inseparable from the movements that influence it, such as kicking, throwing, catching, running, balancing according to the type of game carried out in this study (Anggita, 2019; Firmansyah et al., 2019; Widodo & Lumintuarso, 2017) and can improve social skills in children (Irmansyah et al., 2020). Several studies state that physical literacy is a multi-faceted concept, involving physical and motor competence, sports techniques, and physical skills (Claudia, 2022) (Edwards et al., 2018).

The results of the study carried out tests for the control and intervention groups for each battery test (Kriellaars, 2018). The control group had no effect on increasing PL, while the intervention group

influenced increasing PL. This is because the intervention group had treatment prior to testing the entire battery test. From the overall test results in the study, it is shown that the intervention group influenced increasing PL. Activities in improving PL are also influenced by the types of traditional Lombok games, especially in the development of class IV elementary school students. Children's development through traditional Lombok games includes knowledge and understanding of the movement skills they perform. In accordance with research (Mandigo et al., 2017) states that physical literacy is not only about understanding and practicing physical activity, but also includes children's knowledge and understanding of why physical activity is important and the benefits it produces, as well as the development of attitudes and habits to practice these skills. regularly. In addition, the increase in students' movement skills is influenced by the traditional games used which have been modified according to the principles of game development, namely by constructing them in a simple way so that students can easily learn them and understand how to practice these games (Kurniawan et al., 2020). The elements that are important to note in modifying traditional Lombok games are the types of movement activities that are modified according to student development, using various models, and increasing skills and fitness.

Physical literacy has a relationship that cannot be separated from physical activity. The importance of increasing physical literacy is being able to increase children's participation in physical movement, especially by using traditional games (Kurniawan et al., 2020). Physical literacy is closely related to physical components to influence children's physical activity patterns and motivation (Brown et al., 2020), so it is very important to develop and implement various learning models and strategies in physical education that aim to increase and develop children's physical literacy. This is relevant to research from (Irmansyah et al., 2021) who proposed that physical literacy should be taught from an early age, children and youth within the scope of formal or community education, by adapting to the culture of sports or physical activity in an area, and utilizing various existing learning and training facilities.

CONCLUSIONS

This study shows that the implementation of traditional Lombok games for 12 weeks can improve PL in class IV elementary school students. Most of the test results show effectiveness in increasing a child's PL level. The results of this study can provide an overview of the importance of physical literacy for children and additional knowledge for physical education teachers or academics to focus more on their teaching and research on PL components and child development. Furthermore, it is intended that the findings of this study would be widely adopted, including traditional Lombok games in a variety of community contexts (eg. gymnastic clubs, schools, day nursery). Further research is needed to assess the child's age to develop appropriate teaching approaches or tactics to overcome PL disparities between males and girls.

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