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The Effect of the Project-Based Learning Model on Learning Interest in the Traditional Games Course among Elementary School Teacher Education Students

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Abstrack
This study aims to examine the effect of the Project-Based Learning model on the learning interest of Elementary School Teacher Education students at Universitas Negeri Makassar in the Traditional Games course. The research responds to the limitations of conventional teaching practices that tend to lack active student involvement and do not fully accommodate local wisdom-based approaches. Employing a quantitative approach with a post-test only control group experimental design, the sample consisted of 66 students from the 2024 cohort, divided into two classes: an experimental group (M.24.8) and a control group (M.24.11), selected through purposive sampling. The research instrument was a Likert-scale questionnaire measuring learning interest based on four indicators: attention, interest, engagement, and enjoyment. Data analysis included descriptive statistics, normality testing (Shapiro-Wilk), homogeneity testing (Brown-Forsythe), and hypothesis testing using Welch's t-test and the Mann-Whitney U test. The results indicated that the experimental group had a higher mean score of learning interest (M = 43.91) compared to the control group (M = 39.97), with a significance value of < 0.001. This study contributes to the literature by demonstrating the effectiveness of the PjBL model in the context of culturally grounded instruction and provides practical implications for developing contextual and participatory learning strategies in primary teacher education.

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Introduction

The Traditional Games course in the Elementary School Teacher Education (PGSD) program holds a strategic role in equipping future teachers with an understanding of local wisdom that can be integrated into elementary school learning. Traditional games serve not only as a means of entertainment but also carry educational values that encompass cognitive, affective, and psychomotor aspects. Children's quality of play improves socially when they are accepted into a group, and thus, traditional games can strengthen social interaction and moral values (Suyitno & Setyawan, 2021). Research indicates that traditional games have the potential to foster students' multiple intelligences and instill character values such as cooperation, responsibility, and sportsmanship (Masduki & Kurniasih, 2022). In the context of physical education, traditional games have been proven effective in improving physical fitness and developing students' motor skills through enjoyable and contextual activities (Tapo & Bile, 2021). The social interactions established through traditional games also reinforce cultural and collaborative values within the learning environment (Permana & Irawan, 2019). Games such as tug of war, for instance, are not only enjoyable but also capable of developing character values like teamwork and responsibility (Agustini, 2020). As part of a culturally responsive learning approach, traditional games represent local heritage with high educational value. Learning that integrates local culture enables students to experience education in a real and contextual manner, making learning materials more meaningful and easier to internalize (Agil et al., 2023; Hidayat et al., 2023). Culture-based learning also serves as a medium for preserving cultural heritage that is relevant for instilling cultural identity in the younger generation and building positive social attitudes (Hidayah, Feriandi, & Saputro, 2019; Sukiman et al., 2021; Handayani et al., 2022). PGSD students equipped with an understanding of traditional games as culturally based learning media will be better prepared to develop contextual instruction that is responsive to the social environment of elementary school students. This approach also helps PGSD students understand how to adapt learning to the sociocultural backgrounds of their future pupils.

In meaningful learning contexts, PGSD students are expected to demonstrate high learning interest toward the Traditional Games course. Learning interest is one of the key determinants of academic success in higher education and reflects students' curiosity and active engagement with the learning material (Furqon, 2024; Masduki & Kurniasih, 2022). High learning interest encourages students to participate more actively, show a greater desire to learn, and develop strong internal motivation in attending classes. Learning interest is a crucial internal factor that affects students' involvement in the learning process, including critical thinking and problem-solving activities. It not only enhances motivation and engagement but also has a direct impact on the quality of learning outcomes and students' academic performance (Furqon, 2024). In the Traditional Games course, learning interest is particularly critical as the subject demands active student participation, both physically and socially. Learning interest significantly influences student motivation, which in turn affects the achievement of learning objectives in higher education (Rista, 2022). Studies have shown that innovative approaches such as blended learning can significantly increase students' interest and

engagement, as they offer a more interactive and enjoyable learning environment (Inggriyani et al., 2019). Research also confirms a strong and significant relationship between learning interest and learning outcomes, highlighting the importance of interest as a foundation for educational success (Budiwibowo, 2016). Furthermore, high learning interest positively correlates with optimal learning outcomes, as evidenced in the context of educational management instruction (Abdullah, 2022).

Although the Traditional Games course holds high educational value and great potential as an effective instructional medium, field observations reveal several challenges in its implementation. Based on classroom observations, some students were found to be less active during lectures. They tended to be passive present physically but lacking emotional and cognitive engagement in the learning process. This indicates a low level of learning interest, which may be caused by monotonous teaching methods that fail to encourage active participation. Students who are not actively involved in the learning process tend to become passive recipients of information, making meaningful learning objectives difficult to achieve. Research suggests that overly conventional teaching approaches can lead to boredom and a decline in learning motivation (Erfan & Ratu, 2021). In addition, the use of online systems without interactive methods has also been proven to reduce students' interest in learning (Mardesci & Mardesci, 2020). Another factor influencing students' learning interest is the professional competence of the lecturer. A lecturer's ability to design and manage meaningful instruction significantly determines students' engagement with a course. Furthermore, psychological aspects such as self-identity, emotional state, and social development also influence learning interest, particularly among adolescents and young adults like PGSD students (aged 18–22). Therefore, a relevant learning model must accommodate their psychological and social needs (Zaini, 2018).

One effective approach to addressing the issue of low student engagement and interest is the application of the Project-Based Learning (PjBL) model. PjBL is a contextual learning model that centers on projects designed and executed collaboratively by students. It encourages critical thinking, creativity, and active involvement in designing and implementing learning tasks that are relevant to real-world contexts (Gaffar et al., 2023; Sulistiami et al., 2023). The implementation of PjBL in a community learning setting in Dusun Walan successfully increased students' learning interest by up to 82.9% (Sulistiami et al., 2023). This finding reinforces that PjBL can offer engaging and challenging learning experiences that stimulate students' active participation in class. The model has also been shown to significantly increase learning interest in various subjects at the elementary and secondary school levels, including science, civics, and biology (Tusyadi et al., 2021; Gaffar et al., 2023; Hamidah & Citra, 2021; Widya Pratama et al., 2023). Moreover, PjBL has proven effective in enhancing the scientific attitudes of PGSD students by providing authentic learning experiences that foster curiosity, collaboration, and active engagement in the learning process (Utomo et al., 2020).

Learning interest plays a significant role in academic achievement, and the PjBL model has been shown to positively and significantly influence both learning interest and learning outcomes (Setiawati et al., 2024). This suggests that increasing learning interest through PjBL

has the potential to promote active engagement in learning and lead to improved academic performance. Several previous studies have also demonstrated that the PjBL model can significantly enhance students' interest in learning. The application of PjBL was reported to increase students' learning interest from 78% to 84% by the second cycle in elementary school learning (Gaffar et al., 2023). Similar findings indicated that PjBL significantly improved learning interest and creativity among fifth-grade students (Yuniharto & Rochmiyati, 2022). Other studies also confirm the effectiveness of PjBL in increasing both learning interest and outcomes when compared to conventional methods (Hamidah & Citra, 2021). The PjBL model has demonstrated a significant effect in enhancing students' learning interest in science through contextual and real-project-based approaches (Fauziyah et al., 2021). Research at the high school level has further supported the claim that PjBL positively and significantly influences students' learning interest (Risky & Liana, 2022). PjBL not only encourages active student engagement but also stimulates creativity and higher-order thinking skills (Zakiah et al., 2020).

Although various studies have shown that the Project-Based Learning model is effective in enhancing learning interest and outcomes across different levels of education, most of the research has focused on elementary and secondary education settings, particularly in science-based subjects such as science, biology, and civics (Hamidah & Citra, 2021; Gaffar et al., 2023; Fauziyah et al., 2021). Few studies have examined the application of PjBL in higher education, especially in culturally grounded courses such as Traditional Games in elementary teacher education programs. Moreover, most prior research has emphasized cognitive learning outcomes, while affective aspects such as learning interest have received less attention. This indicates a significant research gap regarding the effectiveness of PjBL in enhancing the learning interest of prospective teachers within the context of local wisdom-based instruction. Therefore, this study aims to examine the effect of the Project-Based Learning model on the learning interest of PGSD students at Universitas Negeri Makassar in the Traditional Games course, as an effort to enrich the literature and practice of contextual learning in higher education.

Method

This study employed a quantitative approach with a post-test only control group experimental design to examine the effect of the PjBL model on students' learning interest. The research subjects consisted of two classes of PGSD students at Universitas Negeri Makassar, class of 2024, namely class M.24.8 as the experimental group and class M.24.11 as the control group, each comprising 33 students selected through purposive sampling based on availability and schedule compatibility. Although the experimental and control classes were taught by different lecturers, external variables were controlled by standardizing the Semester Learning Plan (RPS), learning outcomes, materials, and time allocation. Both lecturers used the same teaching materials and tools, which were agreed upon in advance to ensure that the treatment across groups remained equivalent in terms of content and instructional objectives. The instrument used was a learning interest questionnaire based on a Likert scale, covering indicators of attention, interest, engagement, and enjoyment. This instrument had been validated by experts (expert judgment) and tested for reliability using Cronbach's Alpha

coefficient. To maintain internal validity and minimize experimenter bias, the administration of the questionnaire was conducted using standardized instructions and facilitated by a third party not directly involved in the instructional treatment process. The research procedure began with the application of the PjBL model to the experimental group and the conventional teaching method to the control group, followed by the administration of the questionnaire to all participants. The data were analyzed using descriptive and inferential statistics with the assistance of the latest version of the Statistical Package for the Social Sciences (SPSS) software. Assumption testing was conducted using the Shapiro-Wilk test for normality and the Brown-Forsythe test for homogeneity. Since the data did not meet both assumptions, further analysis was conducted using Welch's t-test and the non-parametric Mann-Whitney test in accordance with the data characteristics and the principles of inter-group comparative quantitative analysis.

Results and Discussion

Results

This study was conducted to determine the effect of the PjBL model on the learning interest of PGSD students at Universitas Negeri Makassar in the Traditional Games course. The research subjects were students from class M.24.8 as the experimental group and class M.24.11 as the control group, each consisting of 33 students. Based on the data analysis, the average learning interest score of students in the experimental class was 43.91, while that of the control class was 39.97. This indicates a notable difference in learning interest scores between the group treated with the PjBL model and the group taught using conventional teaching methods.

Table 1. Descriptive Statistics of Students' Learning Interest

Group	N	Mean	SD	Coefficient of Variation	Mean Rank	Sum Rank
Experiment	33	43,91	2,05	0,047	41,591	1372,500
Control	33	39,97	4,73	0,118	25,409	838,500

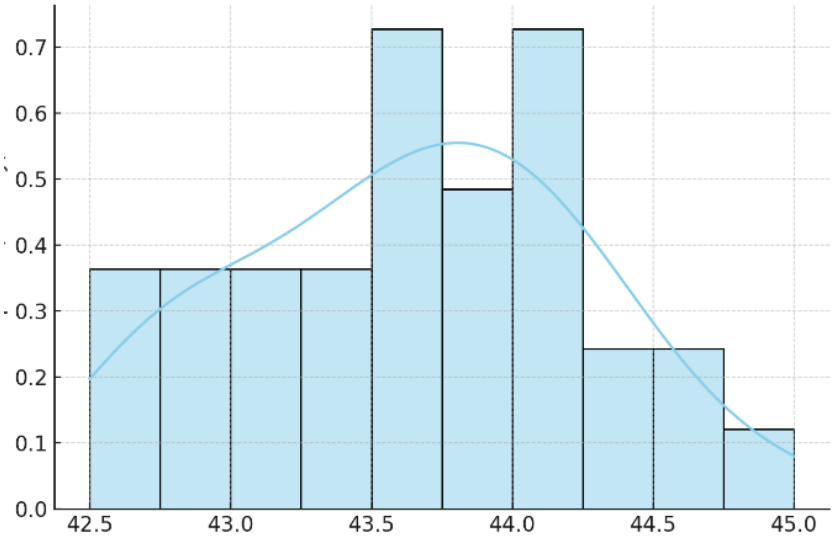

Figure 1. Histogram of Learning Interest of Students in the Experimental Group

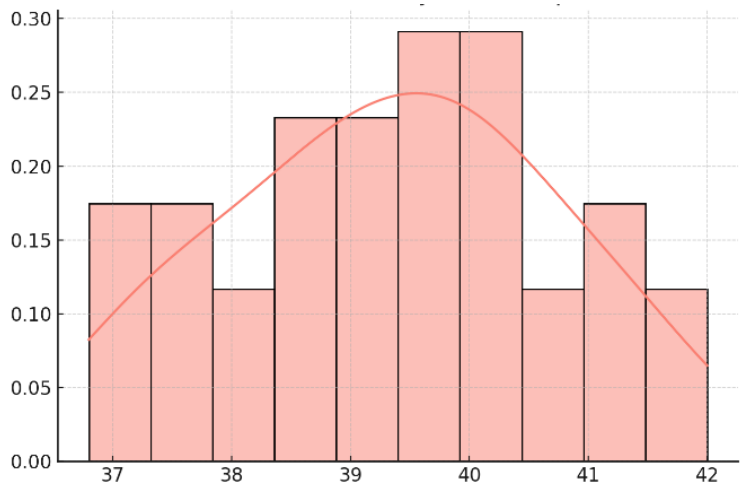

Figure 2. Histogram of Learning Interest of Students in the Control Group

The normality test was conducted to determine whether the learning interest questionnaire data in each group were normally distributed.

Table 2. The Normality Test (Shapiro Wilk)

Residuals	**W**	**p**
Learning Interest	0.919	<. 001

Based on the Shapiro-Wilk test, the following results were obtained:

W = 0,919; Sig. = < 0,001

Since the significance value is less than 0.05, the data are not normally distributed. However, because the sample size exceeds 30, this violation of the normality assumption is still tolerable (Ghozali, 2018), and the analysis can proceed using parametric tests with corrections, as well as non-parametric tests for comparison.

The homogeneity test aims to determine whether the variances between the two data groups are homogeneous

Table 3. Homogeneity Test *(Brown-Forsythe)*

	F	**df_1**	**df_2**	**p**
Learning Interest	9.340	1	64	0.003

Based on the Brown-Forsythe test results were obtained:

F = 9,340; df1 = 1; df2 = 64; Sig. = 0,003

Since the significance value < 0.05, it is concluded that the variances are not homogeneous. Therefore, the Welch's t-test, which does not assume equal variances, was used.

To determine the difference in learning interest between the experimental and control groups, an Independent Samples t-test with Welch correction and a non-parametric Mann-Whitney test as a comparison were conducted. The results are as follows:

Table 4. Hypothesis Test (Independent Samples T-Test)

	Test	Statistic	df	p
Learning Interest	Student	4.387	64.000	< .001
	Welch	39,97	43.616	< .001
	Mann-Whitney	811.500		< .001

All three tests showed a significance value < 0.05, indicating a significant difference in learning interest between students in the experimental and control groups. It can be concluded that there is a significant difference in the learning interest of students who participated in learning using the Project Based Learning (PjBL) model compared to those who experienced conventional learning. These results indicate that the Project Based Learning model has a positive effect on increasing students' learning interest in the Traditional Games course. This supports the hypothesis that the PjBL model has an influence on enhancing learning interest.

Discussion

The results of this study indicate that the implementation of the Project-Based Learning (PjBL) model has a significantly positive effect on increasing the learning interest of PGSD students. This is evidenced by the average learning interest score of the experimental group, which was 43.91—higher than that of the control group, which scored 39.97. In addition, the Mean Rank of the experimental group (41.591) was also considerably higher than that of the control group (25.409), suggesting that students who engaged in PjBL-based learning demonstrated a higher overall interest in learning. The coefficient of variation in the experimental group was lower (0.047) compared to the control group (0.118), indicating that the learning interest data in the experimental group were more consistent and homogeneous. This suggests that PjBL not only enhances general learning interest but also yields evenly distributed effects across all participants.

This improvement can be explained by the pedagogical approach of PjBL, which places students as active agents in the learning process. In the context of the Traditional Games course, students in the experimental group were directly involved in designing, modifying, and practicing traditional games through collaborative projects. These activities created a space for exploration, collaboration, and high emotional engagement. This strengthened the students' attachment to the learning materials and increased their sense of ownership over the learning process. These findings are consistent with Tusyadi et al. (2021), who found that active involvement in projects significantly enhances learning interest. Students were not merely passive recipients of information but instead experienced learning in a direct, relevant, and contextual manner.

Furthermore, the PjBL model within the context of traditional games provided a learning environment rooted in local culture—something that closely relates to students' everyday lives. Games such as *bentengan*, *gobak sodor*, or *tug of war*, which were used as project materials, were not unfamiliar to PGSD students. Their emotional connection to these games naturally fostered interest, as they were not only learning about them but also reviving childhood experiences. This illustrates the importance of local context, demonstrating that PjBL does not stand alone

but is strengthened by meaningful local substance. In this case, learning becomes more than just academic—it also takes on social, cultural, and affective dimensions. These findings align with Gaffar et al. (2023) and Sulistiami et al. (2023), who emphasized that project-based learning environments can create enjoyable and relevant learning experiences.

The project-based approach in this course also contributes to the preservation of cultural values and character, as noted by Hidayat et al. (2023) and Handayani et al. (2022). When students are given the opportunity to review, redesign, and present traditional games as learning projects, they simultaneously build awareness of the importance of cultural heritage in the field of education. Therefore, the increase in learning interest is not solely the result of an innovative method, but also due to students perceiving the meaningful value and social relevance of the material they are studying.

From a psychopedagogical standpoint, PjBL provides students with space to construct knowledge actively, as explained by Slameto (2010) and Furqon (2024). Engagement in projects fosters intrinsic motivation because students retain control over what they learn, and each project lends personal meaning to the learning process. Within the PGSD context, this is crucial: students are required not only to master course content but also to learn how to package and deliver that content to elementary pupils. Consequently, projects that require exploration of traditional games not only heighten interest in the course but also reinforce students' readiness to become teachers.

These findings can also be linked to the developmental characteristics of PGSD students, who are in the early-adulthood stage. At this age, students need recognition, responsibility, and opportunities to learn through meaningful experience (Zaini, 2018). PjBL addresses these needs by providing avenues for collaboration, decision-making, and the public presentation of their work. Compared with conventional, instructor-centred methods, PjBL offers a more dynamic learning experience that aligns with students' developmental profiles.

Nevertheless, the successful implementation of PjBL in this study cannot be separated from several supporting factors. First, students already possessed an initial interest in traditional games, which helped build learning motivation. Second, project success was strongly influenced by lecturers' ability to manage groups, guide processes, and deliver constructive feedback. Third, classroom social cohesion—students' capacity to collaborate, discuss, and help one another also determined project success.

This research is bounded by several limitations. The post-test-only control-group design did not allow the researchers to track individual changes before and after treatment. Moreover, the Likert-scale questionnaire employed captured learning interest only quantitatively and was limited in exploring deeper affective dimensions. The study also did not evaluate how each specific PjBL element (reflection, presentation, or peer assessment) influenced learning interest. Future research could adopt a mixed-methods approach to investigate students' subjective experiences in greater depth and to examine the effectiveness of individual PjBL components separately.

Overall, the results affirm that innovation in instructional strategies is vital for enhancing lecture quality in PGSD programmes. Implementing the PjBL model in the Traditional Games course has proven effective in increasing learning interest, strengthening material relevance,

and creating more meaningful learning experiences. This model is highly suitable for preparing PGSD students to become teachers who not only understand the subject matter but are also able to deliver contextual, inspiring, and culturally grounded instruction. The findings provide practical implications for lecturers to integrate project-based approaches into course design, particularly for subjects imbued with social and cultural values.

Conclusion

Based on the results of the study, it can be concluded that the Project-Based Learning model has a significant positive effect on the learning interest of PGSD UNM students in the Traditional Games course. Students who participated in PjBL-based instruction demonstrated a higher average interest score (43.91) compared to those in the control group (39.97), along with a lower coefficient of variation (0.047 vs. 0.118), indicating not only a greater but also a more consistent improvement in learning interest. Statistical analyses using both Welch's t-test and the Mann-Whitney test confirmed that these differences were statistically significant ($p < 0.05$). These findings suggest that integrating the PjBL model into the curriculum—particularly for practical and culturally rooted subjects—can enhance student engagement and motivation. Accordingly, higher education institutions, especially PGSD programs, are encouraged to adopt this model more broadly, while also supporting lecturers through training in project-based instructional design to cultivate a more contextual, interactive, and pedagogically enriching learning environment.

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Authors' Note

The authors declare that there is no conflict of interest regarding the publication of this article. The authors confirmed that the paper was free of plagiarism.

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