

The Effect of Project Based Learning on Literacy Skills of Elementary School Children

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Article History:

Received: 5-01-2025

Revised: 19-02-2025

Accepted: 27-02-2025

Abstract:

Introduction: Primary school students are expected to be trained in 21st century competencies, one of the most important of which is literacy. This ability is useful for developing elementary school students' understanding of art subjects. However, many obstacles and problems were found during the learning process, therefore a solution is needed by applying a relevant learning model that can be a solution to the findings of the problem, namely the project-based learning model. It is assumed that this model can significantly affect the literacy skills of elementary school students, achieve the desired learning objectives and improve the desired quality of education.

Objectives: The purpose of this study is to determine the effect of project-based learning on literacy skills of elementary school children.

Methods: The research method used quantitative methods with the type of experimental research (quasi experiment) with a research design of nonequivalent pretest posttest group design. The research subjects totaled 64 people, 32 people in the experimental group and 32 people in the control group. Data collection using questionnaires conducted pretest and posttest. Data analysis used normality test, homogeneity test and independent sample t test.

Results: Based on the results of hypothesis testing on the posttest, the significance value > 0.050 and also the average difference in the posttest of the experimental group and the control group makes evidence of differences caused by the application of learning models in the two groups. The experimental group used a project-based learning model while the control group used a conventional model.

Conclusions: The conclusion of this study is that there is an increase in the literacy skills of elementary school children by using the project-based learning model in the learning process. It is hoped that future research can take a closer look at the application of the project-based learning model in other subjects, perhaps at different levels of education. Of course, it can also be combined with other learning models to provide new innovations in learning.

Keywords: Project Based Learning, Literacy Skills, Elementary School, Art Education.

1. Introduction

In the modern era, education also focuses on developing 21st century competencies, such as critical thinking, creativity, collaboration, and digital literacy, to prepare individuals for the challenges and opportunities in an ever-evolving world [1]. Given the pressures of globalization and the speed at which technology is developing, students must possess the necessary literacy skills to adjust to the dynamics of life in the future. Reading, processing the information in the text, and then putting it into practice are all components of literacy. One must simultaneously possess four linguistic skills in order to reach such an aptitude. The four language skills under consideration are speaking, listening, reading, and writing. The four abilities are related to one another. A person is thought to be unable of correctly processing what he reads if he does not possess the four language abilities [2]. "Literacy" activities will naturally be able to incorporate all four language abilities. An essential early foundation in a child's existence is literacy [3]. Language is how children interact with others, and when they are proficient in it, they can ask questions and formulate concepts to share with others. Based on these perspectives, literacy can be defined as the capacity to read and write as well as the ability to appropriately process and apply knowledge.

Reading, writing, interpreting, filtering, and other forms of information processing are all taught to primary school pupils at this level, which is why literacy is so crucial for them. Simply said, literacy is the capacity to read and write. The definition of literacy has expanded throughout time and today encompasses more than just the capacity to write and read [4]. Literacy as the ability to read and write [5]. In addition, literacy also has the same meaning as learning and understanding reading sources. [6]. Literacy generally refers to reading and writing effectively in a variety of contexts [7]. Literacy is an ancestral heritage used to convey information orally and in writing [8]. Literacy is a set of concrete abilities, especially the cognitive abilities of writing and reading, that are not influenced by the environment or the people who teach them. Everybody has the right to literacy, which is the cornerstone of lifelong learning. People, families, and communities can all benefit from literacy [9]. Thus, literacy is the capacity to enhance the quality of people, families, and communities by means of reading comprehension and writing proficiency. Thus, literacy encompasses not just the ability to read and write but also abilities in media, culture, technology, finance, and other areas. According to the above explanation, literacy skills should be taught to children as early as possible in their development because they enhance their cognitive abilities by teaching them to read, write, analyze, process, and re-explain information based on their understanding. So, it is necessary to have a learning model that can train and familiarize students to always learn to develop and improve their literacy skills, one of which is by applying a project-based learning model as one of the solutions to solve the problems found.

Dance learning in elementary schools has an important role in developing students' motor skills, creativity and cultural understanding. However, the challenges faced are low student interest in dance lessons and limitations in creative ability and art literacy. Therefore, innovative learning approaches are needed to improve students' art literacy skills. The findings of the problem show that in grade 4 semester 2 of the Dance subject, it is known that the

learning ability is not satisfactory. There are several factors for students' low interest in art lessons and limitations in art literacy, namely: a. dance learning is less than optimal by using a too rigid or traditional learning method approach that tends to focus on teacher-centered teaching, thus providing less space for students to develop their literacy skills in depth, b. ineffective learning approaches, as a result of which many students lack low art literacy, c. an uncondusive learning environment, such as a classroom that is not large enough for dance activities or no support from the family, can hinder the development of dance literacy, d. the absence of adequate media and tools, such as music, videos, or adequate space, hinders teachers in providing a fun and meaningful learning experience. This is supported by other research which states that in reality not many schools have a dance activity program at school. Many schools have not been able to bring these activities into school learning [10]. Cultural arts are frequently omitted from curricula that prioritize academic courses above their importance as a component of education. One of the challenges that needs to be addressed is the absence of facilities and teacher preparation for overseeing dance education. It should be possible for educators and schools to make these activities a regular part of the curriculum. Cultural introductions are typically implemented with limited time and a limited selection of cultural events. Consequently, youngsters are not given enough exposure to certain cultural concepts [11]. These problems suggest that to improve literacy skills in dance, a more holistic approach is needed, which includes improving teacher competence, adapting teaching methods, and supporting a better learning environment.

Project Based Learning is a model that emphasizes learning through real projects that can stimulate students' critical and creative skills. In the context of dance through project-based learning, students are not only recipients of information, but also active creators of knowledge, face real challenges, and develop a variety of skills that are essential in the 21st century [12]. Project-Based Learning has been shown to be a successful technique for raising students' literacy levels in the setting of dance education. Students are actively engaged in a creative process that necessitates extensive research, report writing, and meticulous documentation of every phase of the project [13]. For example, in studying traditional dance, students can be tasked with researching the history and culture behind the dance and writing up their findings in the form of a written report. This process not only enriches their knowledge of dance but also improves their literacy skills, including reading, writing and critical thinking.

The results of previous research illustrate that the project-based learning model improves many children's literacy skills from various focus areas, the following research results show that there is an effect of the project-based learning model on children's art literacy skills supported by the results of research showing that there is an effect in project-based learning on students' information literacy [14], students' scientific literacy [15], [16], [17], [18], [19], [20], [21], [22], ICT literacy [23], learning literacy [24], energy literacy [25], [26]. It goes without saying that if project-based learning models are used in education, they should be able to enhance children's literacy abilities about art, as multiple studies have demonstrated their substantial and successful impact on this area.

In project groups, students have to share information, discuss ideas and give feedback to each other. These interactions hone their communication skills, both oral and written, which is an essential component of literacy. Students learn to express their ideas clearly and effectively, both in group discussions and in the presentation of their final project [27]. Students are faced with real challenges in dance projects, such as creating choreography that tells a story or adapting a traditional dance into a modern format. Students must conduct in-depth research, develop creative solutions, and write about the process as well as the results of the work. This activity not only improves academic literacy skills but also teaches students to think analytically [28]. Therefore, Project Based Learning provides opportunities for students to gain a deeper understanding of the subject matter. Thus, the purpose of this study is to test and analyze whether there is an effect of project-based learning model on literacy skills of elementary school children.

2. Methods

This design uses a quantitative approach, with the type of experimental research. The experimental research conducted was a quasi-experiment. Quasi experiments test whether there is a causal relationship between independent and dependent variables. The independent variable is tested as a variable that affects the dependent variable, which is the variable being affected, in this quasi-experimental research. The nonequivalent pretest-posttest control group design was the type of quasi-experimental design used. This design evaluates the difference between two groups empirically, Specifically, the experimental group and the control group have been divided. The experimental group and control group are naturally gathered groups, such as a classroom, and can be tested using a pretest. One group can then receive treatment under the supervision of the researcher, and after receiving the treatment, another test can be given using a posttest.

This study examined the effect of project-based learning model on students' literacy skills. The participants of this study were grade 4 elementary school students totaling 64 students, who were divided into two groups: 32 students in the experimental group and 32 students in the control group. The data collection technique used a questionnaire given at pretest and posttest. Indicators of children's literacy skills questionnaire are reading dance information, recognizing dance symbols and movements, listening to explanations about dance, composing dance movements in a structured manner, expressing the meaning of dance movements, writing reflections on dance experiences, communicating orally about dance. This research was conducted on both treatment groups, namely the experimental group and the control group. The experimental group was treated using a project-based learning model and the control group using a conventional model. The research gave a pretest with the aim of knowing the initial ability of students in each class, both classes were given a pretest-posttest with the same test tool.

The research data were analyzed using descriptive techniques and Independent Sample T-Test techniques. The purpose was to determine the significance level of the effect of project-based learning model on students' literacy skills by testing the difference in the average value of students' project competency learning outcomes. However, before conducting this test, researchers first conducted a prerequisite test of research assumptions using normality and homogeneity tests, so that the assumptions of data parameters were met. The normality test used the Kolmogorov-Smirnov technique and the homogeneity test used the Levene's test technique. The research data was tested at a significance level of 5% or 0.05 using the SPSS statistical application.

3. Results

The results of the research findings in the form of the results of the pretest and posttest of the two groups are described below, following the results of the normality test on the pretest and posttest scores of the experimental group and control group:

Table 1. Normality Test

One-Sample Kolmogorov-Smirnov Test					
		Pretest_Experiment	Posttest_Experiment	Pretest_Control	Posttest_Control
	N	32	32	32	32
Normal Parameters ^{a,b}	Mean	33.44	80.63	33.91	77.03
	Std. Deviation	7.007	6.058	7.592	6.703
Most Extreme Differences	Absolute	.157	.171	.164	.182
	Positive	.157	.141	.103	.182
	Negative	-.124	-.171	-.164	-.116
Kolmogorov-Smirnov Z		.888	.968	.927	1.027
Asymp. Sig. (2-tailed)		.410	.306	.356	.242

Based on table 1, the normality test results on the experimental group pretest obtained a significance value of 0.410, on the control group pretest obtained a significance value of 0.306. The value on the posttest of the experimental group obtained a significance value of 0.356, on the posttest of the control group obtained a significance value of 0.242. Thus all the results of the normality test on the pretest and posttest of the experimental and control groups above the significance value > 0.05 , so the data results of the two groups were declared statistically normally distributed. The results of the homogeneity test on the pretest and posttest of the experimental and control groups are as follows:

Table.2 Homogeneity Test

Test of Homogeneity of Variances				
	Levene Statistic	df1	df2	Sig.
Pretest	.332	1	62	.566
Posttest	.921	1	62	.341

Based on table 2, the results of the homogeneity test on the pretest of the experimental group obtained a value and the control group obtained a significance value of 0.566. The value on the posttest of the experimental group and control group obtained a significance value of 0.341. Thus all the results of the homogeneity test on the pretest and posttest of the experimental and control groups above the significance value > 0.05 , so the data results of the two groups were declared statistically homogeneous.

The following are the mean results on the pretest and posttest of the experimental and control groups after statistical testing as follows:

Table.3 Mean Pretest Posttest

		Group Statistics			
	Group	N	Mean	Std. Deviation	Std. Error Mean
Pretest	Experiment	32	33.44	7.007	1.239
	Control	32	33.91	7.592	1.342
Posttest	Experiment	32	81.56	5.599	.990
	Control	32	77.03	6.703	1.185

Based on table 3, the mean on the pretest of the experimental group obtained 33.44 and the control group obtained 33.91. The mean on the posttest of the experimental group obtained 81.56, on the posttest of the control group obtained 77.03. Thus, the mean pretest of the two groups is not much different, while the mean on the posttest in the two groups is much different. The following are the results of hypothesis testing on the pretest and posttest of the experimental and control groups after statistical testing as follows:

Table.4 Hypothesis Test

		Independent Samples Test				
		Pretest		Posttest		
		Equal variances assumed	Equal variances not assumed	Equal variances assumed	Equal variances not assumed	
Levene's Test for Equality of Variances	F	.332		.921		
	Sig.	.566		.341		
t-test for Equality of Means	t	-.257	-.257	2.935	2.935	
	df	62	61.605	62	60.095	
	Sig. (2-tailed)	.798	.798	.005	.005	
	Mean Difference		-.469		4.531	
	Std. Error Difference		1.826	1.826	1.544	1.544
	95% Confidence Interval of the Difference	Lower	-4.119	-4.120	1.445	1.443
	Upper	3.182	3.182	7.618	7.620	

Based on table 4, the results of the independent sample t test on the pretest of the experimental group and the control group obtained a significance value of $0.7978 > 0.050$, Thus, there is no difference in students' initial ability in the sense that children's literacy skills are not significantly different. The value on the posttest of the experimental group and the control group obtained a significance value of $0.005 < 0.050$, Thus, children's literacy skills improve by applying the project-based learning model.

4. Discussion

Based on the results of the study, the experimental group and control group data were normally distributed and statistically homogeneous. As based on the independent sample t test on the pretest, it shows that there is no difference in the initial ability of students in the sense that the literacy skills between students are not much different. Meanwhile, based on the independent sample t test on the posttest, it shows that literacy skills increase with the application of the collaborative problem solving learning model that affects it. Looking at the difference between the pretest scores of the experimental and control groups, which amounted to 33.44 and 33.91 respectively, shows that there was little variation in the two groups' pretest averages or students' initial ability levels. Regarding the difference, the mean posttest score of the experimental group was 81.56, which was greater than the lower control group score of 77.03. This is because, while the control group used the traditional learning paradigm, the experimental group used a different paradigm, namely the project-based learning model. This is the reason why the average of the two groups is different after the research process. The results of this study are supported by previous research which shows that

The improvement of students' literacy skills in art materials due to the positive impact obtained from project-based learning is a learning model whose core learning is a project (activity). During this activity, students research, evaluate, interpret and synthesize information to achieve different learning outcomes (knowledge and skills) [29]. For instance, in primary school dance classes, a project might be a dance performance in which students create the choreography, costumes, and final presentation. Students can acquire critical thinking, creativity, teamwork, communication, literacy, and other vital skills while learning about various facets of dance, project management, and teamwork. According to the explanation, PBL may assist in reinforcing the significance of information literacy by incorporating it into classes as a means of encouraging active participation and assisting students in comprehending how information resources relate to their assignments [30]. PjBL has a greater impact on student literacy in terms of cognitive, affective, and psychomotor aspects than more traditional energy conservation learning models [31]. PBL's application in early childhood education In Grade 2 Primary Education, it has been demonstrated that the project-based learning model helps to foster the development of literacy skills at a young age and has a good and high-level impact on achievement in fine arts sessions [32], [33]. The results of this research study show that PjBL also has a positive impact on the development of literacy competencies at older ages, such as grades 4, 5 and 6. Another literacy study mentioned that Project-Based Learning (PjBL) can improve students' literacy skills because it can help students understand the teaching material in depth [34], [35].

The advantages of project-based learning are not only that it can affect children's literacy skills, but it can also improve children's other abilities or skills. PjBL is learning where students respond to real-world questions or solve problems through a process of inquiry, developing thinking skills, creativity, and encouraging them to work together in a team [36]. PjBL can also create an environment that helps students to build meaningful knowledge and be active in student-centred learning, as well as encourage them to collaborate and solve problems with relevant knowledge and skills [37]. PjBL can encourage the development of higher cognitive levels and offers various forms of performance assessment [38], [39], [40]. That PjBL can increase students' motivation in learning science, problem solving skills and improve learning achievement [41]. The project-based learning method had a positive and high level effect on the visual arts lesson achievements and attitudes [33]. Collaboration is the cornerstone of this approach, reflecting real-world teamwork dynamics and enhancing students' social and communication skills. The reflective practices embedded in this strategy encourage a growth mindset, enabling students and educators to assess and improve their learning processes [42], [43]. Project-based learning represents a shift in education from traditional passive learning to a dynamic student-centred approach. It empowers students to take responsibility for their learning journey, from planning to project execution, thus fostering a sense of ownership and motivation [44]. Project-based learning presents a promising approach, proven to enhance language learning through real-world projects that encourage active participation and collaboration, offering exposure to diverse cultural and rhetorical contexts [45]. Students study through projects in project-based learning in order to produce the final output. In order to make sure that every student is actively participating in the project activities, the instructor also oversees the project creation process. In the learning topic where students learn how to conduct research projects and create unique works, the teacher's role is crucial [46]. PjBL is a learning model that provides direct and real experience for students' understanding of theories and concepts [47]. Therefore, the application of the project-based learning model is highly beneficial and effectively utilized to address issues in the learning process and enhance student competency. In order to effectively accomplish learning objectives and raise the standard of education, there is no need to question your desire to use this learning model in teaching and learning activities.

5. Conclusion

The conclusion of this study shows that the application of the project-based learning model can improve the literacy skills of elementary school students. The results of the independent sample t test on the posttest showed a significant value greater than 0.050, and the average difference between the posttest of the experimental group and the control group provided evidence that students' problem solving skills had improved. While the control group used the traditional paradigm, the experimental group used the project-based learning model. It is hoped that further research will be able to take a closer look at the collaborative problem solving paradigm in other subjects, perhaps at different educational levels. Of course, it can also be used with other learning models.

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