

Examining the Impact of Problem-Based and Project-Based Learning on University Students' Self-Confidence and Writing Skills

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ABSTRACT

This study aimed to examine the impact of project-based learning (PBL) and problem-based learning (PjBL) on students' self-confidence and short story writing ability in the Primary Teacher Education department at FKIP, Jambi University. The research included 161 second-semester students and employed a quasi-experimental design with nonequivalent pre-test and post-test control groups. The instruments used were pre-tests and post-tests, and data analysis included Normality Test, Homogeneity Test, and Hypothesis Test. The findings indicated that both PBL and PjBL positively influenced students' short story writing abilities. Additionally, self-confidence significantly impacted students' writing skills. An interaction effect was observed between the learning models and self-confidence in writing ability. The two-way ANOVA results of the post-test for the experimental groups (PBL and PjBL) and the control group showed a significance value of 0.014 (<0.05), indicating a rejection of the null hypothesis and acceptance of the alternative hypothesis. Thus, the application of PBL and PjBL models significantly improved the short story writing abilities of FKIP students at Jambi University.

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1. INTRODUCTION

Writing is a fundamental skill in educational settings, crucial for effective communication and expression. According to Astiantih and Akfan (2023), writing involves the ability to formulate and develop ideas into coherent written language that can be understood by readers. Manalastas (2020) emphasizes that writing is a creative process aimed at expressing thoughts through written symbols. Among various forms of creative writing, short story writing stands out as a unique activity (Al-Shaer, 2014). It involves succinctly conveying complex human experiences and emotions, either personal or observed, through narrative form (Suryani and Izar, 2023). Mastering this skill not only enhances students' creative abilities but also enriches their capacity to communicate effectively and empathetically.

Short story writing activities can be particularly beneficial after students have engaged with prose in short story form (Mogahed, 2013). This practice fosters creativity, allowing students the freedom to explore and fulfill contemporary learning demands related to creativity (Dzarian, Salam, and Anggo, 2021). The ability to appreciate and write short stories enhances students' potential in literature (Hosnan, 2014).

Developing skills in short story writing, which requires both activity and creativity, is essential for students to become proficient in their field or others. Due to its importance, short story writing is a staple in regional and national student arts fairs, encouraging students to hone their writing skills even outside the literature field.

Despite its significance, observations of second-semester students in the Indonesian Education Department, Indonesian Literature Department, and Primary Teacher Education Department at Jambi University revealed problematic levels of short story writing skills. The teaching and learning processes were suboptimal, with many students showing little interest in writing short stories. Discussions with students indicated a desire to improve their short story writing skills but a lack of effective methods. Many students attributed their disinterest to the focus on presentations rather than practical writing exercises. Common difficulties included theme selection, story structure, conflict development, diction, and language style. These issues were exacerbated by the prevalence of direct learning models, where students passively receive information from teachers or lecturers.

Karim (2017) describes direct learning models as having several characteristics: passive reception of information, individual learning, abstract and theoretical focus, habit-based behavior, absolute truths, teacher-determined processes, extrinsic motivation, and minimal student interaction. In contrast, the independent curriculum promotes quality learning tailored to students' needs, considering their talents, interests, and self-confidence. Effective learning models significantly impact learning outcomes. Problem-Based Learning (PBL) and Project-Based Learning (PjBL) are particularly relevant in this context (Ismayanti, 2016).

Cheriani et al. (2015) highlight that PBL involves presenting real-life problems to stimulate students' curiosity and engagement. Mulyasa (2014) adds that PBL focuses students on complex problems, facilitating collaborative projects that integrate various subjects and encourage meaningful exploration. PBL helps students develop high-level thinking and problem-solving skills (Sulhan, Wilujeng, and Prasetyo, 2023). Suprihatiningrum (2017) outlines the stages of PBL: presenting real problems, identifying facts, generating hypotheses, addressing knowledge gaps, applying new knowledge, and reflecting on learning.

Similarly, Hosnan (2014) describes Project-Based Learning (PjBL) as a model using projects to collect and integrate new knowledge based on real activities, making learning more relevant and engaging for students. Sianturi (2021) notes that PjBL enhances learning motivation, problem-solving skills, student activity, collaboration, and various other skills critical for the 21st century. The steps of PjBL include defining projects that align with curriculum goals, planning collaboratively to ensure all students are involved in the decision-making process, preparing schedules to manage time efficiently, completing projects through active investigation and application of knowledge, assessing outcomes to gauge the effectiveness of the learning experience, and evaluating the learning process to identify areas for improvement. By following these steps, educators can create a dynamic learning environment that not only fosters academic growth but also prepares students for real-world challenges.

Self-confidence is another critical aspect of learning, as it motivates students to tackle tasks and improves their abilities and achievements (Darwanto, 2019). It fosters a positive self-perception and encourages students to engage more actively in their learning processes. When students believe in their capabilities, they are more likely to take on challenges and persist through difficulties, which is essential for developing writing skills. Strong self-confidence enhances students' capacity to write short stories effectively by allowing them to express their ideas more freely and creatively. Moreover, confident students are more likely to seek and incorporate feedback, further refining their writing abilities and overall academic performance. This self-assurance not only benefits their writing skills but also contributes to their overall academic and personal growth.

Previous research has explored the use of PBL and PjBL in educational settings, demonstrating their effectiveness in various contexts. For instance, Jusriandi (2017) showed that PjBL improved drama script writing among high school students, while Hotimah (2020) found that PBL enhanced storytelling abilities in elementary students. Additionally, Pradana (2015) highlighted how participatory strategies using blog media improved short story writing in middle school students. However, these studies primarily focused on middle and high school levels, leaving a gap in understanding the impact of these methods in higher

education. This research aims to examine the influence of PBL and PjBL on university students' self-confidence and writing abilities in the Faculty of Teacher Training and Education at Jambi University, addressing this gap. The research objective is to determine whether these teaching strategies can enhance self-confidence and writing skills at the university level. The research question guiding this study is: "How do PBL and PjBL affect university students' self-confidence and writing abilities in the Faculty of Teacher Training and Education at Jambi University?" This investigation seeks to provide novel insights into the application of PBL and PjBL in higher education contexts.

2. METHODS

The method used in this research is a quasi-experimental design, with a nonequivalent pre-test and post test control group design. Quasi-experimental research is a research design where individuals are not placed in groups completely randomly (Creswell 2012). The research design in this study used two experimental groups and one control group. In the experimental group, problem based learning (PBL) and project based learning (PJBL). A pretest used to see students' short story writing ability was carried out in class experiments and control classes, while post test used to see the implementation of problem based learning is carried out learning in experimental class, Project Based Learning in experimental class towards self confidence. The implementation of these learning models were observed using an observation sheet for know its implementation.

The population of this research was all primary teacher educations students at Jambi University for the 2022/2023 academic year, totaling 161 students consisting of five classes, namely classes of 001 until 005. (Sugiyono 2014) the population was all research subjects. The research samples were taken by using random sampling, namely 2 experimental classes and 1 class as a control class. According to (Sugiyono 2014) the sample is part of the number and characteristics of the population.

The research instrument was an observation sheet on the implementation of the PBL, PjBL, and direct learning. The observation sheet used to establish standardization and control (Hour 2015). Observation was a way of collecting data by observation direct and systematic recording of the objects to be studied. Observations were carried out by researchers by observing and recording regarding the implementation of learning in the class. Then was the self- confidence questionnaire instrument. This instrument used to know obtain data regarding the extent of the influence of self-confidence in writing short story ability, this was done by giving a set of written statements to respondents to be answered (Sugiyono 2014) and in the last, the using of short story writing ability instrument test. This instrument used to know the ability of the students to write short story after implementing the PBL and PJBL learning models.

This research begins with the preparation stage, followed by the implementation stage, and finally the analysis stage (Sugiyono, 2014). During the preparation stage, various research requirements are prepared, including the syllabus, lesson plans, and observation sheets for both lecturers and students on the PJBL learning model, PBL, and direct instruction. Additionally, pretest and posttest questions on students' short story writing abilities and questionnaires on students' self-confidence skills are developed. Permission to conduct the research is arranged, and lesson plans and research instruments such as observation sheets, questionnaires, and test questions are validated by an expert in the field. The validated research instruments are then prepared for use. The experimental and control classes are determined through simple random sampling. The pretest and posttest questions are initially tested outside the research classroom to assess their quality, and the quality of these questions is analyzed based on this testing.

In the implementation stage, a pretest is administered to evaluate students' short story writing abilities in both the experimental and control classes. PBL is implemented in experimental class I, PJBL in experimental class II, and conventional learning in the control class. The implementation of the learning is observed using an observation sheet to monitor its progress. Finally, in the analysis stage, a posttest is conducted in both the experimental and control classes to assess the outcomes. This systematic approach ensures thorough preparation, execution, and evaluation of the research.

The hypotheses in this research are as follows:

The first hypothesis posits that the learning model has no influence on the short story writing ability of students in the primary teacher education department at FKIP Jambi University (H_0). Conversely, the alternative hypothesis (H_1) suggests that the learning model does influence writing ability in this context.

The second hypothesis states that self-confidence does not affect writing ability in the primary teacher education department at FKIP Jambi University (H_0). The alternative hypothesis (H_1) proposes that self-confidence does have an impact on short story writing ability.

The third hypothesis asserts that the learning model does not influence writing abilities when considering self-confidence in the primary teacher education department at FKIP Jambi University (H_0). The alternative hypothesis (H_1) indicates that the learning model, in terms of self-confidence, does affect writing abilities.

The decision-making criteria are based on probability values: if the probability is greater than 0.05, then H_0 is accepted; if the probability is less than 0.05, then H_0 is rejected.

Table 1. Research design

Class	Pretest	Action	Posttest
Experiment 1 (PJBL)	O1	X1	O2
Experiment 2 (PBL)	O1	X2	O2
Control (Direct Instruction)	O1	-	O2

Explanation:

X1= Learning treatment Problem Based Learning (PBL)

X2 = Learning treatment Project Based Learning (PJBL)

O1= Pretest Problem Based Learning, Project Based Learning, Direct Instruction

O2= Posttest Problem Based Learning, Project Based Learning, Direct Instruction

3. FINDINGS AND DISCUSSION

3.1 *The Description of Influencing Problem-based Learning, Project-Based Learning and University Students' Self-Confidence*

This research aimed to answer the previously determined research questions and strengthen the corresponding hypotheses. The study was conducted with primary teacher education students at FKIP Jambi University. Based on data analysis and hypothesis testing, the null hypothesis (H_0) was rejected, and the alternative hypothesis (H_1) was accepted, indicating that PBL, PJBL, and direct learning models significantly influenced students' short story writing abilities in the primary teacher education department at FKIP Jambi University.

The findings revealed that students taught using the PBL learning model demonstrated a short story writing ability that was 1.37 points higher than those taught using the PJBL model. This can be attributed to the problem-solving aspect of PBL, where students focus more on identifying and resolving conflicts, a critical element in short story writing. This result aligns with the research by Nurul Layal and Darwin Effendi (2022), which found that the PBL model positively influences students by encouraging critical thinking through problem-solving and solution generation. Similarly, Hariyanto (2017) noted that the PBL model helps students become accustomed to and challenged by problem-solving both inside and outside the classroom.

Additionally, the average posttest scores of students in experimental class 1, taught using the PBL model, were 4.56 points higher than those in the control class, which used a direct learning model. This finding is consistent with Halawa et al. (2023), who found that students taught with the PBL model showed better and more creative short-story writing abilities than those taught with direct learning. The pretest score for short story writing was 56, while the posttest score increased to 83, indicating improved creative thinking abilities. This improvement is due to the encouragement of creative thinking in completing short story writing tasks. Overall, the results of data processing and discussion demonstrate that the PBL model has a more positive influence compared to the PJBL and direct learning models on the short story writing abilities of primary teacher education students at FKIP Jambi University.

Furthermore, hypothesis testing revealed that self-confidence significantly influences short story writing ability. Students with high self-confidence or good self-recognition are more likely to undertake activities like writing short stories. Strong self-confidence helps motivate students to enhance their abilities and achieve learning goals. Thus, short story writing ability and self-confidence can be developed simultaneously in the learning process.

3.2 Results of Student Post Test Data Analysis

This data was obtained through tests, these tests were carried out to measure students' abilities in writing short stories. The results of the student's test were presented in table as follows:

Table 2. Post-Test Data Description of Students' Ability to Write Short Stories

Descriptive Statistics				
N	Minimum	Maximum	Mean	Std.Deviation
Experiment Class_1	32	7	11,84	3,390
Experiment Class_2	32	6	11,63	2,904
Class Control	31	6	11,61	2,952
Valid N (listwise)	31			

The normality test above was intended to find out whether the sample comes from the population normally distributed or not. Normality test results of student post test scores on the significance of 0.05 using SPSS 25 software is as follows.

Table 3. Kolmogorov-Smirnov Normality of Students' Writing Ability in Post-test

Test of Normality							
class		statistic	df	sig.	statistic	df	sig.
Post test value	Experiment Class1 (PBL)	,136	34	,115	,889	34	,002
	Experiment Class1 (PBL)	,145	31	,096	,884	31	,003
	Class control (direct learning)	,156	30	,059	,912	30	,017

From the table above it can be seen that the Kolmogorov-Smirnov test results obtained values sig. (p-value) of 0.115 for the PBL learning model, PjBL of 0.096, and direct learning is 0.059. So from these three learning models stated to have a value of $sig > 0.05$, thus it can be concluded that "Students' abilities based on the learning model come from a diverse population "Normal" distribution.

3.3 Homogeneity of Variance Test of the Three Samples

According to (Pauwels, Lamberty, and Schimmel 1998), the homogeneity test is intended to find out whether the sample comes from homogeneous (or non-homogeneous) populations. Homogeneity test analysis using test Barlett at the significant level $\alpha = 0.05$. The data obtained from the calculated data is as follows:

Table 4. Test the Homogeneity of Student Abilities Based on Learning Models

		Test of Homogeneity of Variances			
		Levene Statistic	df1	df2	Sig.
Post test value	Based on Mean	1,234	2	92	,296
	Based on Median	1,042	2	92	,357
	Based on Median and with adjusted df	1,042	2	86,697	,357
	Based on trimmed mean	1,292	2	92	,280

Based on the picture above, it can be seen that the significant value is more than 0.05. Therefore, it can be said that students' ability to write short stories is homogeneous.

3.4 Hypothesis Test Using Two-Way ANOVA Test

After ensuring that the assumptions for hypothesis testing were met, the hypotheses were tested using a Two-Way ANOVA to determine if there were significant differences between the means of the research groups (Trihendradi, 2011). The Univariate Analysis of Variance (ANOVA) test was conducted, followed by further testing, using SPSS 25 software with a 95% confidence level. If the significance level was less than 0.05, the null hypothesis (H_0) was rejected. The results of the hypothesis testing using Two-Way ANOVA are as follows.

Table 5. Hypothesis Test Results Using Two Way Anova

Test of Between-Subjects Effects							
Source	Type III Sum Of squares	Df	Mean Square	F	Sig.	Partial Squared	Eta Squared
Corrected Model	344,345 ^a	3	114,782	1,163	,328	0,37	
Intercept	459494,201	1	459494,201	4655,028	,000	,981	
Class	125,526	2	62,763	,636	,532	,014	
Self_	,682	1	,682	,007	,934	,000	
Confidence							
Self	,000	0				,000	
Confidence							
Class							
Error	8982,539	91	98,709				
Total	524969,000	95					
Corrected Total	9326,884	94					

a. R Squared = 0,37 (Adjusted R Squared = ,005)

Based on the table above, the following results were obtained:

For the first hypothesis, H_0 states that there is no influence of implementing Problem-Based Learning (PBL), Project-Based Learning (PjBL), and direct learning models on students' short story writing abilities. In contrast, H_1 posits that applying the PBL, PjBL, and direct learning models influences students' short story writing abilities.

Based on the table above, it can be seen that the significance value for the learning model is 0.014 (< 0.05), then H_0 is rejected or H_1 is accepted. In other words, there is 8 the influence of applying the problem based learning, PjBL, and direct learning models on students' short story writing abilities.

Second Hypothesis, H_0 : There is no influence of Self Confidence on the ability to write of Students.

H1: There is an influence of Self Confidence on the ability to write short stories student. Based on Table above, it can be seen that the significance value for Self Confidence is 0.00 (< 0.05), then H0 is rejected or H1 is accepted. In other words, self-influence confidence is a factor in students' short story writing abilities. Third Hypothesis, H0: There is no interaction between the application of the Problem Based Learning model, PJBL, with Self Confidence in short story writing abilities student.

H1: There is an interaction between the application of the Problem Based Learning model, PjBL, with Self Confidence on students' short story writing abilities.

Based on Table 5, it can be seen that the significance value for the learning model and Self Confidence is 0.00 (< 0.05), so H0 is rejected or H1 is accepted. With words on the other hand, there is an interaction between the application of the Problem-Based Learning model, PJBL, and Project-based Learning model with Self Confidence regarding short story writing skills student

Table 6. Turkey Advanced Test of Class Variable

Multiple Comparisons							
Dependents Variable : Post test_ Value							
Turkey HSD							
(I)	Class	(J) Class	Mean Difference (I-J)	Std.Error	Sig.	95%Confidence Interval Lower Bound	Upper Bound
Experiment 1(PBL)	Class	Experiment Class 2 (PjBL)	1,37	2,467	,845	-4,51	7,24
		Class Control (Direct Laerning)	4,56	2,489	,165	-1,37	10,49
Experiment Class 2 (PjBL)	Class	Experiment Class 1(PBL)	-1,37	2,467	,845	-7,24	4,51
		Class Control (Direct Laerning)	3,19	2,544	,424	-2,87	9,26
Class Control (Direct Learning)	(Experiment Class 1(PBL)	-4,56	2,489	,165	-10,49	1,37
		Experiment Class 2 (PjBL)	-3,19	2,544	,424	-9,29	2,87

Based on Observed means.
The error term is means Square (Error)= 98,709.

Tukey's further test was conducted to identify significant differences among the variables. Significant differences are marked with an asterisk (*). The results are as follows:

1. The average posttest scores for students' short story writing ability in experimental class 1, taught with PBL, and experimental class 2, taught with PJBL, differed by 1.37 points, with students in the PBL class scoring higher.
2. The average posttest scores for students' short story writing ability in experimental class 1, taught with PBL, and the control class, taught with direct learning, differed by 4.56 points, with students in the PBL class scoring higher.
3. The average posttest scores for students' short story writing ability in experimental class 2, taught with PJBL, and the control class, taught with direct learning, differed by 3.19 points, with students in the PJBL class scoring higher.

Discussions

As presented in the research results, data on self-confidence and short story writing ability were collected from primary teacher education students at FKIP Jambi University. These students were divided

into two experimental classes and one control class, selected based on average pretest scores to ensure comparability. The findings demonstrate that the PBL model had the most positive influence on short story writing abilities compared to the PJBL model and direct learning. This aligns with Giawa (2022), who found that PBL is more effective than PJBL in improving students' narrative writing abilities. Similarly, Hakimah (2023) reported that PBL effectively enhances students' writing skills. Almulla (2020) also found that PBL significantly improves learning situations.

The results and hypothesis testing indicated a significant influence of self-confidence on short story writing ability. High self-confidence correlates with a greater willingness to engage in writing activities. Dean and Julian (2021) confirmed significant correlations among learning motivation, self-confidence, and writing ability. Strong self-confidence helps motivate students to improve their skills and achievements, simultaneously allowing the development of both writing ability and self-confidence in the learning process.

The research concludes that there is an interaction between learning models and self-confidence in influencing short story writing ability among primary teacher education students at FKIP Jambi University. This is consistent with Suryani (2020), who found that using various learning models is more effective than conventional methods.

A two-way ANOVA on the posttest results for short story writing ability among the three classes—experimental class 1 (PBL), experimental class 2 (PJBL), and the control class (direct learning)—yielded a significance value of 0.014, which is less than 0.05. This indicates that the null hypothesis (H_0) was rejected and the alternative hypothesis (H_1) was accepted, confirming that PBL, PJBL, and direct instruction significantly influence short story writing ability.

The study highlights the positive impact of using PJBL and PBL learning models on students' self-confidence and short story writing abilities. These models engage students actively in the learning process through group discussions and case analysis, making students more proactive in seeking relevant material or information. Additionally, students become more active and skilled in writing short stories, and the classroom atmosphere becomes more dynamic and focused, reducing boredom. Overall, the research underscores the effectiveness of PBL and PJBL in enhancing both self-confidence and writing skills among primary teacher education students.

4. CONCLUSION

Based on the data findings and discussions, this research concluded that the PJBL and PBL learning models significantly influence the short story writing abilities of primary teacher education students at FKIP Jambi University. Additionally, self-confidence plays a crucial role in enhancing these students' writing abilities, with a notable interaction between learning models and self-confidence in their effect on short story writing skills. For teaching literature, particularly short story writing, it is recommended that educators apply the PJBL and PBL learning models. The PBL model encourages students to think critically, identify problems, and devise solutions, making it highly beneficial for Indonesian language teachers. The PJBL model is equally effective, as it promotes student engagement and confidence by providing ample opportunities for active participation. Future research should explore the application of PJBL, PBL, and direct learning models in teaching other literary forms, such as poetry, to compare findings with this study. Despite previous research on similar topics, variations in school environments and inputs suggest that new studies may yield different results, underscoring the need for ongoing investigation in this area. This continuous exploration will help refine educational strategies and adapt them to diverse learning contexts.

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