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The Effect of Using Project-Based Learning Strategy on Writing a Short Story Skills of Fifth Year Preparatory School Students

A B S T R A C T

This study investigates the effect of using the Project-Based Learning (PBL) strategy on the writing skills of fifth year secondary school students. It aims to identify the effect of using the Project-Based Learning strategy on students' skills in writing short story. It is hypothesized that there is no statistically significant difference between the mean scores of students who learn using the Project-Based Learning strategy and those who learn through conventional method, and there is a statistically significant difference between the mean scores of students of the experimental group in the pre and posttest. An experimental approach is used with a sample of 60 students from divided into control and experimental groups. The findings of the study indicate a significant improvement in the writing short story of students who are taught using the PBL strategy.

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تأثير استخدام استراتيجية التعلم القائم على المشاريع في مهارات كتابة القصة القصيرة لدى طلاب
 الصف الخامس الإعدادي

سمير حكمت عمر / مديرة تربية صلاح الدين
الخلاصة:

تتناول هذه الدراسة تأثير استخدام استراتيجية التعلم القائم على المشاريع (PBL) على مهارات كتابة القصة القصيرة لدى طلاب الصف الخامس الإعدادي. تهدف الدراسة إلى تحديد ما إذا كانت هذه الاستراتيجية

تعزز قدرات الطلاب في كتابة القصص القصيرة. افترضت الدراسة وجود فرق ذي دلالة إحصائية عند مستوى ٠.٠٥ بين متوسط درجات الطلاب الذين تعلموا باستخدام استراتيجية التعلم القائم على المشاريع وأولئك الذين تعلموا بالطريقة التقليدية. وكذلك في درجاتهم بين الاختبار القبلي والبعدي للتجربة. استخدمت الدراسة منهجًا تجريبيًا على عينة مكونة من ٦٠ طالبًا تم تقسيمهم إلى مجموعتين: تجريبية وضابطة . تشير النتائج إلى تحسن ملحوظ في مهارات كتابة القصة القصيرة لدى الطلاب الذين تم تعليمهم باستخدام استراتيجية التعلم القائم على المشاريع.

الكلمات المفتاحية: التعلم القائم على المشاريع، الاستراتيجية، الكتابة، القصة القصيرة.

1. Introduction

In today's educational landscape, traditional methods often fail to engage students in meaningful learning. Writing, a core language skill, is particularly challenging for learners at the secondary level (Mohammad and Jasim, 2024). Project-Based Learning (PBL) has emerged as a modern approach that integrates real-world challenges to foster deeper understanding. This study aims to explore the impact of PBL on the writing skills of secondary students in an EFL context (Wardani, Artini, & Ramendra, 2023).

Project-Based Learning (PBL) is an innovative educational approach that emphasizes learning through the completion of a real-world project or task. This approach encourages students to solve complex, real-world problems, thus enhancing their critical thinking, problem-solving, collaboration, and communication skills. The primary aim of PBL is to transform traditional education from a passive, lecture-based model to an active and interactive learning experience (Thomas, 2000).

1.1 Aim

This study aims to identify the effect of using the Project-Based Learning strategy on students' skills in writing short story.

1.2 Hypotheses

- 1- There is no statistically significant difference between the mean scores of students who learn using the Project-Based Learning strategy and those who learn through conventional method at 0.05 level of significance.
- 2- There is no statistically significant difference between the mean scores of students of the experimental group in the pre and posttest at 0.05 level of significance.

1.3 Limits of The Study

This study is limited to

- 1- The application of project based teaching,
- 2- The academic year 2023-2024,
- 3- fifth-year preparatory school students,
- 4- the impact of Project-Based Learning on writing short story skills, and
- 5- an experimental (or quasi-experimental) design with an experimental group and a control group.

2. Theoretical Background

Project-Based Learning (PBL) is a student-centered pedagogy that involves a dynamic classroom approach in which students acquire a deeper knowledge through active exploration of real-world challenges and problems. Rooted in constructivist theories by Piaget and Vygotsky, PBL emphasizes the role of learners as active participants in constructing their knowledge. In the context of language education, PBL helps students develop critical thinking, collaboration, and communication skills while also improving linguistic competencies (Beckett, Beck, Lestari, Yang, & Lim. ,2025).

Numerous studies have examined the effectiveness of PBL in enhancing language skills. Thomas (2000) found that students in PBL classrooms outperformed those

in traditional settings in terms of engagement and achievement. Bell (2010) highlighted the role of PBL in promoting autonomous learning and deeper understanding. In writing instruction, Fragoulis and Tsiplakides (2009) reported that PBL improved both the mechanics and creativity of student writing. These studies collectively support the integration of PBL into language curricula to enhance writing proficiency.

2.1 Concept of Project-Based Learning

Project-Based Learning is a teaching strategy where students work on real-world projects that require research, analysis, and collaboration. These projects can range from academic research assignments to practical, hands-on tasks. The key feature of PBL is that students don't just learn by receiving information; instead, they apply the knowledge they acquire in a practical context (Bell, 2010).

2.2 Key Characteristics of Project-Based Learning

1. **Focus on Real-World Tasks:** PBL emphasizes solving actual problems or achieving real goals, encouraging students to apply knowledge in meaningful ways (Blumenfeld et al., 1991).
2. **Collaborative Learning:** PBL promotes teamwork and collaboration among students, helping them develop important communication and interpersonal skills (Thomas, 2000).
3. **Ongoing Assessment:** Students are evaluated continuously based on their progress through different stages of the project, rather than being judged solely on the final product (Bell, 2010).
4. **Experiential Learning:** PBL allows students to learn by doing, providing a hands-on experience that deepens their understanding of concepts (Dewey, 1938).
5. **Interdisciplinary Learning:** Projects often require students to use knowledge from various subjects, fostering holistic and integrated thinking (Blumenfeld et al., 1991).

2.3 Stages of Project-Based Learning

The following are the stages that can be adopted according PBL:

- a- **Project Planning:** In this phase, the project topic or task is determined, and the educational goals and objectives are set (Thomas, 2000).
- b- **Research and Analysis:** Students begin gathering information and resources relevant to the project and analyze the data accordingly (Bell, 2010).
- c- **Design and Implementation:** Based on their research and analysis, students start designing solutions to the problem or creating the required product (Blumenfeld et al., 1991).
- d- **Evaluation and Refinement:** The progress of the project is assessed based on certain criteria, and students work on refining the final result (Dewey, 1938).
- e- **Presentation and Sharing:** The results of the project are shared with an audience, either through a report, presentation, or tangible product (Bell, 2010).

2.4 Importance of Project-Based Learning

The following items can reflect and clarify the importance of PBL:

1. **Enhances Critical Thinking Skills:** PBL encourages students to think critically and analyze information in depth (Blumenfeld et al., 1991).
2. **Fosters Collaboration Skills:** Since many projects are done in groups, students learn to work effectively with others (Thomas, 2000).
3. **Increases Motivation:** PBL increases student motivation to learn, as they are working on projects that have real-world relevance (Bell, 2010).
4. **Teaches Lifelong Skills:** Students gain valuable life skills such as time management, leadership, and problem-solving through PBL (Dewey, 1938).
5. **Links Learning to Real-World Applications:** PBL connects academic learning to the real world, better preparing students for future challenges in both their personal and professional lives (Blumenfeld et al., 1991).

2.5 Challenges of Implementing Project-Based Learning

1. **Time and Resources:** PBL often requires more time than traditional teaching methods, which can be a challenge in some educational settings (Bell, 2010).
2. **Diverse Student Abilities:** Some students may struggle to participate effectively in group projects due to differences in their abilities (Thomas, 2000).
3. **Teacher Training:** Effective PBL requires that teachers be well-trained in how to manage and guide projects (Blumenfeld et al., 1991).

2.6 Applications of Project-Based Learning

1. **Primary and Secondary Schools:** PBL is widely used in K-12 education, where students engage with various topics through creative projects (Thomas, 2000).
2. **Higher Education:** Many university professors use PBL, particularly in fields such as engineering, science, and economics, to foster applied learning (Bell, 2010).
3. **Vocational Training:** PBL is also utilized in vocational education to teach practical skills required in various professions (Blumenfeld et al., 1991).

2.7 Skills of writing Short Story

Redpath (2024) mentions that writing a compelling short story involves a combination of creative, technical, and narrative skills. Here are the key skills needed:

1. Conciseness

- **Skill:** Telling a complete story in a limited word count.
- **Why it matters:** Short stories typically range from 250 to 500 words. Every word must serve a purpose there's no room for filler.

2. Strong Opening

- **Skill:** Grabbing the reader's attention immediately.
- **Why it matters:** You need to hook the reader in the first few lines through action, mystery, or a strong voice.

3. Character Development

- **Skill:** Creating believable, engaging characters quickly.
- **Why it matters:** Even in a short story, readers must care about the characters. This often involves using details efficiently to suggest depth.

4. Clear Conflict

- **Skill:** Establishing a central conflict or tension early.
- **Why it matters:** Conflict drives the plot and keeps the reader interested. Without it, the story lacks momentum.

5. Focused Plot

- **Skill:** Keeping the storyline tight and purposeful.
- **Why it matters:** Short stories usually focus on one main event or moment of change. Subplots are minimal or non-existent.

6. Thematic Depth

- **Skill:** Embedding meaning or a theme subtly within the story.
- **Why it matters:** A strong theme can give a short story lasting impact, even with a brief word count(Majeed and Hameed,2021).

7. Show, Don't Tell

- **Skill:** Using description, action, and dialogue to convey ideas rather than exposition.
- **Why it matters:** This technique helps make the story vivid and emotionally engaging. (Ringo, 2025).

8. Effective Dialogue

- **Skill:** Writing dialogue that reveals character and advances the plot.
- **Why it matters:** Dialogue can quickly show personality and relationships while keeping the story moving.

9. Satisfying Ending

- **Skill:** Crafting a conclusion that feels earned and complete.
- **Why it matters:** The ending should resolve the central conflict or leave a meaningful impression twists or open-ended conclusions can work if done skillfully(Courtright, 2025).

10. Editing and Revision

- **Skill:** Polishing prose for clarity, grammar, tone, and impact.
- **Why it matters:** A well-edited story is tighter, more professional, and more likely to resonate with readers or editors (Ringo, 2025).

3. Methodology

3.1 Experimental Design

This study employs a quasi-experimental design with a pre-test and post-test for both control and experimental groups. The sample consists of 60 fifth preparatory students, who are divided equally into 30 students for control with and 30 for experimental groups. The experimental group receives instruction through the Project-Based Learning strategy, while the control group is taught using traditional methods.

3.2 Population and Sample

The population comprises fifth-year secondary school students during the 2024–2025 academic year. A purposive sample of 60 students is selected and divided into two groups: 30 at the experimental group and 30 at the control group, as shown in table (1).

Table One

Population and Sample of the Study

Population & Sample		Groups	Sections	Number
Population	370	Experimental	A	30
Sample	60	Control	B	30
percentage	16.21 %	Total		50

Equalization between the two groups is measured where the two groups students' ages in months, mothers' and fathers' attainment, and pretest are calculated and compared using the appropriate statistical means such as t-test and chi. Square. All the obtained results indicate that there are no differences between the two groups students regarding the mentioned equivalence factors.

3.3 Instruments of the Study

3.3.1 Pre-Test and Post-Test related Short Story

A pretest “is administered prior to implementing an experimental treatment or program in order to verify the initial equivalence of the study's chosen sample.” (Creswell, 2012). The pretest of the study is to write two different short stories freely fifty scores allotted to each one.

Two writing tests are designed and administered before and after the intervention to measure students' performance in short story writing. The tests are evaluated using a rubric assessing content, organization, vocabulary, grammar, and mechanics according to (Brown and Abeywickrama, 2018).

The test involves writing two short stories the first one is to write about any topic or story that he/she like, on the other hand the second one is to write story according to a given title following specific clues. Fifty scores are allotted to each one of the two questions.

3.3.2 Scoring Rubric

A scoring rubric adapted from Jacobs et al. (1981) is used to ensure reliable and consistent evaluation of students' writing performance.

3.3.3 Item Analysis of the Writing Test

Item analysis is conducted to assess the difficulty level and discrimination power of the writing tasks.

- a) Difficulty Level (P-value): Difficulty ranged from 0.45 to 0.68, indicating moderate difficulty.
- b) Discrimination Index (D-value): Discrimination ranged from 0.32 to 0.46, showing good to excellent discrimination.

3.3.4 Behavioral Objectives of the Writing Lessons

- Cognitive Objectives: identify and apply writing structures, use correct grammar and mechanics, and organize ideas logically.
- Affective Objectives: demonstrate engagement and responsibility, Respect others' views, and Value writing as a communication tool.
- Psychomotor Objectives: plan, draft, edit writing, and use digital tools effectively.

3.4 Validity and Reliability of the Study Instrument

To ensure content validity, the instruments have been reviewed by TEFL experts where they presented their advices and suggestion in terms of grammar, vocabulary, organization, and mechanics to be modified (Madsen, 1983). For reliability, inter-rater reliability has been calculated, yielding a Pearson correlation coefficient of r to be 0.89, representing high consistency.

3.6 Instructional Procedures

3.6.1 Teaching the Experimental Group (Using PBL Strategy)

Students engaged in real-world projects over 8 weeks:

- Week 1: Introduction to PBL.
- Weeks 2–3: Planning and research.
- Weeks 4–5: Drafting collaboratively.
- Weeks 6–7: Revising and editing.
- Week 8: Presenting final projects and reflecting.

3.6.2 Teaching the Control Group (Traditional Method)

The control group received textbook-based instruction, where the taught items are as follows:

- Grammar explanations.
- Individual writing tasks.
- Minimal interaction.
- Teacher-centered feedback.

3.7 Statistical Means of Data Analysis

Data have been analyzed using SPSS software. Descriptive statistics (means and standard deviations) and inferential statistics (paired and independent samples t-tests) are used. The significance level is set at 0.05.

3.1 Instruments: A writing test is developed to assess students' writing skills in terms of grammar, vocabulary, organization, and mechanics. The validity and reliability of the test are confirmed through expert judgment and pilot testing.

3.2 Procedure: Over an 8-week period, the experimental group engaged in structured projects including writing reports, creating presentations, and collaborating on real-world tasks. The control group followed the standard writing curriculum without project-based components.

4. Data Analysis

This section presents a comprehensive statistical analysis of the data collected to examine the effect of using the Project-Based Learning (PBL) strategy on the writing skills of fifth year secondary school students.

4.1 Comparison between Control and Experimental Groups

After collecting data related to both control and experimental groups, and comparing students' achievement in writing short story, the results of the mean scores of both groups' students are mentioned in, table (2):

Table (2)
Descriptive Statistics for Writing Scores

Group	N	Mean	Std. Deviation	Level of significance
Control	30	65.43	6.12	0.05
Experimental	30	78.67	5.89	

T-test of two independent samples has been used to show the scope of the difference between the achievement of control and experimental groups student in the posttest, as mentioned in table (3).

Table (3)
T-test of Two Independent Samples

Group	t	d. f.	Level of Significance	Mean Difference
control	8.512	58	0.05	13.24
Experimental				

The calculation of t-test of two independent samples is 8.51. The independent samples t-test revealed a statistically significant difference between the experimental and control groups, indicating that the PBL strategy significantly improved students' writing skills.

4.2 Pre and Post Test Comparison

To compare the achievement of control and experimental groups students at pretest with their achievement at post-test so as to identify the effect of the adopted strategy, t-test of paired sample is used, as mentioned in table (4):

Table (4)
Paired Samples Statistics

Group	Pre-Test Mean	Post-Test Mean	Mean Difference
Control	64.12	65.43	1.31
Experimental	64.57	78.67	14.10

It has been found out that there are significant differences between the two groups at pretest where the mean scores are (64.12 and 64.57). On the other hand, at the posttest the mean score of students achievement differs between the control and experimental groups where the mean score of experimental one (78.67) exceeds the control one (65.43). Moreover the mean difference of experimental group difference between pre/post-test is (14.10) while for the for the control one is (1.31). This indicates the that Project Based Strategy increased student level at learning short story skills. So, the first hypothesis is rejected.

4.3 Effect Size

So as to find out the effect size of the Project Based strategy on Learning writing short story skills, Cohen's formula and analysis is applied on students achievement of both control and experimental groups, as mentioned in table (5).

Table (5)
Paired Samples T-Test and Effect Size

Group	T	Df	Sig. (2-tailed)	Effect Size (Cohen's d)
Control	1.205	29	0.238	0.22
Experimental	10.834	29	0.020	2.03

The paired samples t-test showed a significant improvement in the experimental group but not in the control group. The effect size for the experimental group is large, suggesting a strong effect of the PBL strategy.

4.4 Analysis Related to Writing Sub-Skills

After collecting data related to both control and experimental groups, and comparing students' achievement in writing short story, the results of the mean scores and t-test of both groups' students in writing sub-skill are mentioned in, as mentioned table (2) :

Table 5
Descriptive Statistics for Writing Sub-Skills (Post-Test)

Sub-Skill	Group	Mean	SD	T	Level of sig
Grammar	Control	13.4	2.1	6.231	0.05
	Experimental	17.9	2.0		
Organization	Control	12.6	2.3	5.945	0.05
	Experimental	17.2	2.1		
Vocabulary	Control	14.0	1.9	5.421	0.05
	Experimental	17.5	1.7		
Mechanics	Control	11.4	2.4	5.873	0.05
	Experimental	15.8	2.0		
Cohesion	Control	12.6	2.2	4.32	0.05
	Experimental	16.7	3.2		

The sub-skills analysis confirmed that students in the experimental group performed better in all aspects of writing. All the mean scores of the experimental group in the sub-skills are better than students of the control one ranging (17.9 , 17.2 , 17.5 , and 15.8) with significant difference of t-test scores higher than the tabulated value (2.02).

4.5 Discussion of Results

The data clearly demonstrate that using a Project-Based Learning (PBL) strategy significantly enhanced students' short-story writing skills when compared to traditional instruction.

Post-test scores were considerably higher in the experimental group ($M = 78.67$) compared to the control group ($M = 65.43$). An independent-samples t-test yielded $t(58) = 8.51$, $p < 0.05$. This statistically significant difference highlights that the PBL approach has a robust positive effect, beyond what might be expected from chance fluctuations alone.

While the control group exhibited a minimal gain (M increase = 1.31), the experimental group improved by an average of 14.10 points. The minor gain in the control group suggests minimal learning or exposure effects over time, whereas the

large gain in the experimental group reflects the impactful role of the PBL intervention.

Practical Significance of Effect Size (Cohen's d):

- Control group: $d = 0.22$ (small effect)
- Experimental group: $d = 2.03$ (extremely large effect)

According to Cohen's thresholds where 0.2 is considered small, 0.5 medium, and ≥ 0.8 large your experimental group's effect size of 2.03 falls within the highest magnitude, indicating a dramatic and educationally significant improvement

Cohen's d of 2.03 implies that the average student in the experimental group scored better than approximately 98% of the control group peers showing not just statistical significance, but also meaningful real-world impact.

- Sub-skill Analysis:

The experimental group outperformed the control group in all five writing sub-skills:

- Grammar: 17.9 vs. 13.4
- Organization: 17.2 vs. 12.6
- Vocabulary: 17.5 vs. 14.0
- Mechanics: 15.8 vs. 11.4
- Cohesion: 16.7 vs. 12.6

Each t-value exceeded the critical threshold (approx. 2.02 for $df=58$), indicating statistically significant improvements in every domain.

These consistent gains align with published literature attesting to PBL's effectiveness in fostering writing skills, including sub-components like grammar, vocabulary, and organization .

-Implications

The main empirical and statistical results show the following procedures:

1. Rejecting the null hypothesis: there is a meaningful difference attributable to PBL rather than chance.
2. Educational impact: The exceptionally high effect size suggests PBL is not just beneficial. It's transformative in supporting writing development.
3. The sub-skill enhancements further reveal that PBL strengthens writing comprehensively not just superficially.

5.Conclusions

This study has reached the following conclusions:

1. Project-Based Learning (PBL) is an effective educational approach that fosters critical thinking, creativity, and real-world problem-solving skills. Despite some challenges, such as the need for time and resources, PBL offers numerous benefits for students, helping them to develop essential skills that will prepare them for future academic and professional success.
2. The Project-Based Learning (PBL) strategy significantly improved the writing skills of fifth year secondary school students, not only in overall performance but also in specific sub-skills such as grammar, organization, vocabulary, and mechanics.
3. Project-Based Learning significantly enhances students' engagement and motivation, as it allows learners to take ownership of their learning process through meaningful, real-world tasks.
4. Students taught through PBL demonstrate better retention and understanding of content, as the strategy promotes active learning and critical thinking rather than passive memorization.
5. PBL improves collaboration and communication skills, since students often work in teams, share responsibilities, and present their work collectively.
6. The use of PBL fosters creativity and problem-solving abilities, encouraging students to explore multiple solutions and think independently.

7. Project-Based Learning bridges the gap between theoretical knowledge and practical application, helping students see the relevance of what they learn to real-life situations.
8. Students who learn through PBL show improvement in self-confidence and autonomy, as they are given more responsibility in planning, organizing, and evaluating their work.
9. The implementation of PBL in the classroom positively influences students' academic achievement, particularly in skill-based subjects like writing, speaking, and research.

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