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Enhancing EFL Learners' Critical Thinking and Speaking Skills Through Digital Storytelling in a Problem-Based Learning Framework

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Abstract

This study employed the Problem-based Learning Method (PBL) with Digital Storytelling (DST) as a learning innovation. Critical thinking, an essential 21st-century skill enables students to engage with complex ideas and make rational judgements. Likewise, speaking skills are vital for effective communication in the global market. Therefore, the study aims to compare the practical significance of the students' critical thinking and speaking skills against a set criterion of seventy - five (75%) percent as well as to investigate the satisfaction of the students after using the PBL with DST. The study used a post-test only research design. Through cluster random sampling, three classes—M511, M512, and M514—comprising Grade 11 Thai students from the Foreign Language Program at Benjamarachutit School, Nakhon Si Thammarat were identified as the research population. From these classes, thirty (30) students from M512 were selected as the research sample. The data were collected through Critical Thinking Test, Speaking Skill Rubrics and Satisfaction Rating following an 18 - hour implementation of the Problem - Based Learning Method with Digital Storytelling lesson plans. The data were analyzed using One-Sample t - test and descriptive statistics, comparing the mean and standard deviation to answer the research questions. The findings revealed that, after using PBL with DST and comparing to the set criterion of 75%, the students had developed their critical thinking with an overall percentage of 82.50% with a mean score of 16.50. Meanwhile, students' speaking skills also showed improvement, with an overall percentage of 77% and a mean score of 15.40. The analysis component of critical thinking, along with the grammatical and lexical features, and corrective feedback and evaluation of speaking skills demonstrated the most significant development among the components. Additionally, the use of PBL with DST received a 'Completely Satisfied' rating from the students, with a mean score of 4.58. In conclusion, PBL with DST is an effective learning innovation to enhance EFL learners' critical thinking and speaking skills.

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Introduction

The English language remains the language of the world, with 15% of the population (7.8 billion) using it primarily for communication. Its significance is particularly evident in the global market, especially in EFL countries like Thailand. In response, the Foreign Language National Curriculum of Thailand includes English Language as one of its primary learning areas. More broadly, proficiency in foreign languages enables students to understand and navigate through various situations in school, community, and society. In addition, English opens new career opportunities and provides access to multiple cultures being the language of the internet (Ilyosovna, 2020).

Moreover, communication and problem-solving capacities are two key competencies in the Basic Education Core Curriculum of 2008. Therefore, the students' critical thinking and speaking skills are crucial learning outcomes. For students aged 15 to 18, possessing critical thinking skills enables them to become rational thinkers who can work with complex ideas and effectively provide evidence to justify reasonable judgments (Çavdar & Doe, 2012). Conversely, speaking skills, one of the essential macro skills in language learning, are needed in this competitive world. Every English language learner strives to improve their speaking skills to succeed in this global market, as job opportunities often depend on strong communication abilities, particularly in speaking (Rao, 2019).

However, despite the effort of Thailand's education system, the country still scores low in critical thinking. The World Economic Forum's Global Competitiveness Index 2019 revealed a score of 37/100 for Thailand. Additionally, a survey by Puriwat and Tripopsakul (2017) found that critical thinking skills among new university graduates have declined. The Program for International Student Assessment (PISA) results for 2022 further highlights this issue, as scores in reading, logical, and analytical thinking among Thai students were lower compared to 2018. Approximately 35% of students in Thailand attained level 2, indicating that they can comprehend ideas at a basic level. Consequently, Thailand's educational system is ranked 35th out of the 40 countries included in a report published by Pearson Education.

Unfortunately, English skills in Thailand are poor and, by some measures, declining. According to an English Proficiency Index by Education First (EF), a Swiss-based education and training provider, Thailand's score dropped by more than two points to 47.6 between 2017 and 2019. This index ranked Thailand last among the eight ASEAN countries surveyed this year. Currently, according to the EF English Proficiency Index 2022, Thailand ranks 97th out of 111 countries worldwide, indicating a very low English Proficiency. In ASEAN, it is ranked eighth out of ten, close to Cambodia ranking 94th, but far behind Singapore (2nd), Philippines (22nd) and Malaysia (24th), all of which are classified as high proficiency. Thailand's score of less than 450 suggests that individuals can only perform basic tasks such as introducing themselves (name, age, country of origin), understand simple signs, and give basic directions to foreign visitors.

In a more specific context, the results of the Common European Framework of Reference for Languages (CEFR) Test for Benjamarachutit School also indicate a low level of English Proficiency among Grade 12 students. The 2022 CEFR results revealed that 65% of test - takers are placed only at the Basic 1 - 3 (CEFR A1 & A2) levels. This demonstrates that the English proficiency at Benjamarachutit School remains unsatisfactory. The CEFR aims to measure educational achievement for Grade 12 students in the Foreign Language Department across four main sections: conversation, reading, listening and grammar.

The lack of critical thinking and speaking skills among students is deeply rooted in the type of education they receive in their classrooms. Critical thinking is characterized by a meticulous and rigorous approach. As an academic discipline, it uniquely focuses on the processes involved in rational thinking (Black, 2012). Speaking skills, meanwhile, are an interactive process of constructing meaning that involves producing, receiving, and processing information (Brown, 1994; Burns & Joyce, 1997).

Unfortunately, despite long-standing and numerous efforts across various sectors in Thailand to foster critical thinking, this decline in students' critical thinking skills remains a persistent issue. This is partly due to the teaching methods used, which still focus on passive learning wherein students are still taught to listen, rather than to question (Boa, Wattanatorn, & Tagong, 2011). Meanwhile, Noom-ura (2013) from the Language Institute at Thammasat University identified several issues in English language learning. His studies found that students do not practice English enough in their own time. When they want to express an idea, they think in Thai first and then translate into English, thereby making

it difficult to communicate. Additionally, they struggle with writing and pronunciation.

Yet, despite these obstacles to developing critical thinking and speaking skills among Thai students, an innovative and active type of learning method is still lacking. Hence, there is a need for educational innovations that can both motivate students to think critically and maximize their speaking skills outside the classroom.

Problem - based learning (PBL) is a teaching method which students learn through complex and open - ended problems (Ali, 2019). It uses a real - world context opposing the traditional teacher - centered approach. (Duch, Groh, & Allen, 2001). PBL fosters greater understanding, higher abilities, lifelong learning skills, and is more enjoyable and satisfying with a student-centered approach. Through student - centered activities learners actively construct knowledge, developing their mindset to think critically. Applying PBL in English teaching positively influences the students' speaking abilities, making them more active to speak in class as they have something to contribute. In a similar vein, Khotimah (2014) claims that the use of PBL activities in an EFL classroom engages students in problem - solving helping them improve their speaking skills.

In the 21st century, education increasingly relies on technology as an educational tool to maximize the students' learning experience. Digital Storytelling (DST) blends storytelling with digital media including images, texts, sound and other elements (Chan & Yau, 2019). These stories typically last at least five minutes and are narrated in a stand - alone, first - person narrative. DST enhances current lessons within larger units, facilitates discussion about the topics presented in a story and makes abstract or conceptual content more understandable. A study by Chan (2019) reveals DST increases students' self-esteemand critical thinking disposition. Additionally, using DST as an intervention in the learning process can improve the students' critical thinking, deep learning, communication skills and teamwork (Zarei et al., 2021).

To introduce a more active and technology - based learning method, the integration of Problem - based Learning (PBL) and Digital Storytelling (DST) is emphasized in the study. This approach aims to develop the critical thinking and speaking skills of Grade 11 Thai students through the innovative use of PBL combined with DST. In the learning activities component, PBL utilizes interactive DST to stimulate students' thinking and achieve meaningful learning through presenting thought - out solutions. PBL as the main learning process enables learners to develop a systematic thinking process, solving problems, and construct knowledge. The integration of interactive DST further enhances learning ability, reflecting students' thinking in a systematic way which leading to meaningful learning outcomes (Poonsawad, Srisomphan, & Sanrach, 2022).

The concept of PBL is well - integrated with Digital Storytelling as it engages students in solving real - life scenarios. This study can help devise an effective tool to increase student motivation in developing their critical thinking and communication skills. As a student - centered approach, the integration of technology can help teachers facilitate learning by maximizing their students' experience outside the classroom. For curriculum developers, the result of the study can assist in creating, enhancing and applying Problem-based Learning with Digital Storytelling as a key instructional material for teaching the English Language.

For this reason, this study will focus on implementing a Problem-based Learning Method with the integration of Digital Storytelling (DST) as a learning innovation to develop students' critical thinking skills and speaking skills. Additionally, it will assess the effectiveness of this learning innovation in terms student satisfaction.

Objectives

1. To compare the result of the Critical Thinking Test in relation to the set criterion of 75% after using Problem-based Learning Method with Digital Storytelling.

2. To compare the result of the Speaking Skills in relation to the set criterion of 75% after using Problem-based Learning Method with Digital Storytelling.

3. To investigate the level of satisfaction of the students after using Problem-based Learning Method with Digital Storytelling.

Research Methodology

The research employed a post - test only design using quantitative methods. This approach compiles numerical data to test causal relationships among variables. Since the purpose of the study is to determine the significance of Problem - based Learning Method with Digital Storytelling on students' critical thinking, speaking skills and satisfaction, this method effectively addressed the research questions.

In the study, the Grade 11 students received a treatment (X), followed by a posttest (O) to compare their scores against the set criterion. After completing the posttest, the researcher administered a satisfaction rating to assess students' satisfaction with the use of the Problem Based Learning Method with Digital Storytelling.

Participants and Sampling

The research consisted of three (3) different classes namely, M511, M512, and M514 studying under the Foreign Languages Program. It included 90 Grade 11 students of Benjamarachutit School who are non-English majors and are enrolled on Listening and Speaking (E32202) course for Semester 2.

There are thirty (30) Grade 11 students from the M512 class of the Foreign Languages Program that were selected from the population using cluster random sampling to be the final respondents of this study.

Instruments

According to the insights presented by Ary, Jacobs, and Sorensen (2010), selecting appropriate and useful measuring instruments is critical to the success of any research study. Therefore, the researcher developed four instruments for this study: nine lesson plans based on the Problem - based Learning Method with Digital Storytelling, a Critical Thinking Test, Speaking Skill Rubrics and a Satisfaction Rating.

1. Problem-Based Learning Lesson Plans

The study primarily used a combination of Problem-based learning (PBL) and Digital Storytelling (DST). The lessons included the four main phases of DST namely, Pre-Production, Production, Post - Production and Distribution. Meanwhile, the steps of PBL proposed by Srikan, Pimdee, Leekitchwatana, and Narabin's (2021) PRPPS Model required students to: (1) define problems or issues that need to be solved, (2) analyze, isolate, and discuss the root causes of the problems, (3) research new knowledge from the learning environment, including resources, cognitive tools, and support bases to discuss, analyze, and synthesize information per the objectives, (4) present their work by showing the relationship of the gathered information in line with their objectives, and (5) summarize new ideas or knowledge derived from the produced work. The integration of these methodologies aimed to develop the students' critical thinking and speaking skills effectivelyThe study consisted of nine lesson plans, each covering five steps aligned with the Problem-based Learning Method. The Digital Storytelling was divided into three topics: (1) Cause of the Problem, (2) Effect of the Problem, and (3) Solution of the Problem, with each topic spanning three lesson plans, resulting in a total of nine lesson plans for the entire learning unit. Each topic underwent the four phases of DST, which allowed the students to complete three (DST) outputs at the end of the implementation. Specifically, one lesson plan focused on the Pre - Production Phase, one on the Production Phase, one on the Post - Production Phase, and one on the Distribution Phase. In summary, every three lesson plans comprised of five steps: (1) Problem Identification, (2) Problem Analysis, (3) Research, (4) Presentations, and (5) Summary and Evaluation.

To test the validity of the nine lesson plans, three experts rated each using a 5-point Likert scale with 5 being the highest (Completely Satisfied) and 1 being the lowest (Not at All Satisfied). After gathering the rating and comments from the experts, the researcher calculated the mean score based on the criteria. All the lesson plans achieved a mean score ranging from 4.44 - 4.71, indicating a 'Very Good' rating from all the experts.

2. Critical Thinking Test: 20 - Item Multiple Choice

The 20 - item test was specifically developed by the researcher to address the study's need for assessing the participants' Critical Thinking skills. Moreover, the test was subject to expert evaluations to ensure the validity and reliability of the questions and answers. It is based on the Cambridge Assessment Taxonomy on Critical Thinking, further elaborated by Beth Black. The test comprises of 20 items, each with four multiple-choir options. The questions are evenly distributed across the five (5) elements of Critical Thinking from Black (2012): (a) Analysis, (b) Evaluation, (c) Synthesis/ Inference (d) Construction and (e) Self - reflection.

After the experts' validation, the researcher calculated the Index of Item - Objective Congruence (IOC) index from the three experts showing that all the components of the critical thinking test scored above 0.67, indicating the retention of the test items. Additionally, the researcher employed the Kuder - Richardson 20 (KR - 20) formula, which revealed a reliability coefficient of .834 for the critical thinking test.

3. Speaking Skill Rubrics for Panel Discussion

The students' speaking skills were assessed using a rubric with the following components: (1) Prosody, (2) Fluency and Accuracy, (3) Grammatical

and Lexical Features, and (4) Corrective Feedback and Evaluation. Prosody is measured through the use of pauses, prominences, pitch variations, and changes in voice quality. Fluency and accuracy are assessed based on the ability to produce and comprehend utterances smoothly, rapidly and accurately. Grammatical and Lexical Features are evaluated through the use of correct grammar and vocabulary. Corrective Feedback and Evaluation focused on the ability to correct errors in grammar and semantics during the DST presentation and panel discussion. The rubrics has five (5) scales, with 5 being the highest and 1 - 2 being the lowest, described as 'Does Not Approach Expectations', a score of 3 as 'Approaching Expectations', 4 'Meet Expectations,' and 5 'Exceeds Expectations.'

Through validation by three experts, the IOC index of the speaking skill rubrics indicated an average score of 1, retaining all the items. Meanwhile, the researcher employed the Kuder - Richardson 20 (KR - 20) formula which revealed a reliability coefficient of .868 for the speaking skill rubrics.

4. Satisfaction Rating

The 5 - point Likert Scale Rating measures students' satisfaction after using the Problem - based Learning Method with Digital Storytelling. The questions were based on the study of Tadesse, Alemayehu, and Mulugeta (2022) and modified by the researcher to fit the objectives of the study. The components of the satisfaction questionnaire are: (1) Teaching, (2) Learning, (3) Supervision and Feedback, (4) Course Organization, and (5) Skill Development. Each component includes four (4) questions totaling 20 questions. Students rate their satisfaction on a scale from 1 to 5: 5 (Strongly Agree), 4 (Agree), 3 (Neutral), 2 (Disagree), 1 (Strongly Disagree).

After expert validation, the researcher calculated the IOC index from the three experts which showed that all the components of the critical thinking test are all above 0.67, resulting in the retention of all questionnaire items. Additionally, the researcher employed the Kuder - Richardson 20 (KR - 20) formula for the satisfaction rating questionnaire, which revealed a reliability coefficient of .902.

Analytical Strategy

The data from the Critical Thinking Test and Speaking Skill Rubrics were analyzed and interpreted by comparing the significance of Critical Thinking and Speaking Skill to the set of criterion of 75%. The One-Sample Test was used to obtain the data's mean, standard deviation, t - value and significance in comparison to the set criterion.

The study set a criterion of 75% to justify the practical significance of PBL with DST on students' critical thinking and speaking skills of the students. Benjamarachutit School, the research site, typically uses a standard passing score of 70% for all learning areas. By setting a higher criterion, the study aimed to demonstrate that if the results showed practical significance, the learning innovation could be claimed effective in developing the critical thinking and speaking skills of the EFL senior high school student.

The overall Critical Thinking test and each of its components (Analysis, Evaluation, Inference, Construction and Self - Reflection), along with the overall Speaking Skill and its components (Prosody, Fluency and Accuracy, Grammatical and Lexical Features, Evaluation and Corrective Feedback) were analyzed and interpreted to address the research objectives.

The data from the 5 - point Likert scale satisfaction rating was analyzed using descriptive statistics to identify its mean and standard deviation. This analysis included the overall satisfaction and its components (Teaching, Learning, Supervision and Feedback, Course Organization, and Skill Development).

In interpreting the results of the Satisfaction Rating, the following table of description and interpretation was used for the analysis.

Results

Table 1 Descriptive Interpretation of Satisfaction Rating

Likert Scale Description	Likert Scale	Likert Scale Interval	Interpretation
Completely Satisfied	5	4.21–5.00	Very good
Very Satisfied	4	3.41–4.20	Good
Moderately Satisfied	3	2.61–3.40	Acceptable
Slightly Satisfied	2	1.81–2.60	Poor
Not at All Satisfied	1	1.00–1.80	Very Poor

The Results of the Critical Thinking Test

Table 2 Overall Results of the Critical Thinking Test

	n	Full Score	M	SD	Percentage	t
Critical Thinking	30	20	16.50	7.77	82.50	3.53*

*$p \leq .05$

The results revealed an overall above-average level of Critical Thinking among Thai Students after using Problem - based Learning Method with Digital

Storytelling. This indicates improvement in the students' critical thinking as shown by the mean score comparison to the set criterion of 75%. The mean score of 16.50 indicates 80.00%, derived from the overall score of 30 students. This score is 5% above the set criterion of 75%. Additionally, the standard deviation for the Critical Thinking Test is 7.77.

Table 3 Results of the Critical Thinking Test by Component

Component	n	Full Score	Mean	SD	Percentage
Analysis	30	4	3.60	0.24	90.00
Evaluation	30	4	3.30	0.21	82.50
Inference	30	4	2.87	0.36	71.67
Construction	30	4	3.33	0.30	83.33
Self-Reflection	30	4	2.90	0.35	72.50

The table summarizes the results of Critical Thinking Test according to its five components. From the result, the Analysis scored the highest, with an average mean score of 3.6, indicating that 90% of the students answered correctly. This was followed by Construction and Evaluation. These three components—Analysis, Construction and Evaluation—showed an overall score above the 75% set criterion. In contrast, Self-Reflection scored 72.50, which is 2.5% below the set criterion, and Inference scored 71.67%, which is 3.33% less than the set criterion.

Furthermore, the table explicitly shows that Analysis has the highest mean score and percentage, indicating that during the teaching and learning process, the students are able to recognize arguments and explanations, dissect the arguments, identify unstated assumptions and clarify meanings related to the causes, effects and solutions of educational inequality.

The Results of Speaking Skills Assessment

Table 4 Overall Results of the Speaking Skills Assessment After Using the Problem-based Learning Method with Digital Storytelling

	n	Full Score	M	SD	Percentage
Speaking Skills	30	20	15.40	0.75	77

The table shows the overall mean score of the students' speaking skills to be 15.40 (77%). This reveals that students have developed their speaking skills in comparison to the set criterion of 75%. Meanwhile, the Speaking skills results show a standard deviation of 0.75.

The table summarizes the results of speaking skills of students per component. Among the components, Grammatical, Lexical Features and Corrective Feedback and Evaluation are the highest with a mean score of 3.93 (78.67). They are followed by Fluency and Accuracy. However, Prosody is 1% below the set criterion of 75% with a mean score of 3.70 (74%). Overall, the Speaking Skills of the students is above the set criterion of 75% with a mean score of 3.86 (77.17%).

Table 5 Summary of Speaking Skills Assessment by Component

Component	n	Full Score	M	SD	Percentage	t
Prosody	30	5	3.70	0.84	74.00	-.327
Fluency and accuracy	30	5	3.87	0.78	77.33	.82
Grammatical and lexical features	30	5	3.93	0.78	78.67	1.28
Corrective feedback and evaluation	30	5	3.93	0.58	78.67	1.72

From the table, the Grammatical and Lexical Features together with Corrective Feedback and Evaluation had the highest mean score and percentage. This only explicitly shows that, during the teaching and learning process, the students are able to utilize their ability to use of correct grammar and vocabularies appropriate for their DST and panel discussion and are able to correct errors in grammar and semantics during their DST presentation and panel discussion.

The Results of Satisfaction Rating

Table 6 Overall Results of Satisfaction Rating on the Problem-based Learning Method with Digital Storytelling.

Component	N	M	SD	QD
Teaching	30	4.69	0.55810	Completely Satisfied
Learning	30	4.53	0.60230	Completely Satisfied
Supervision and Feedback	30	4.60	0.44284	Completely Satisfied
Course Organization	30	4.45	0.57767	Completely Satisfied
Skill Development	30	4.63	0.50015	Completely Satisfied
Overall	30	4.58	0.53621	Completely Satisfied

The table shows an overall mean score of 4.58, indicating that the students are completely satisfied with the use of Problem - based Learning Method with Digital Storytelling. The Teaching Component received the highest mean score of 4.69, followed by Skill Development at 4.63, Supervision and Feedback at 4.60, Learning at 4.53, and Course Organization at 4.45. The mean scores per component, ranging from 4.45 - 4.69, indicate a high level of satisfaction with the overall teaching and learning process of Problem - based Learning Method with Digital Storytelling.

Conclusion

Problem - based Learning Method with Digital Storytelling (PBL with DST) was implemented to enhance Thai students' critical thinking skills, aiming to surpass a set criterion of 75%. The assessment of the

critical thinking components—Analysis, Evaluation, Inference, Construction, and Self-reflection—revealed an overall 7.5 percentage of practical significance, particularly in Analysis (3.6%), Evaluation (3.33%), and Construction (3.3%). However, Inference and Self-reflection showed below-average results at 2.5% and 3.33 %, below the 75% criterion, respectively. The integration of PBL with DST proved effective due to its problem-oriented, self-directed, student-centered, and collaborative nature, suggesting its potential as a teaching and learning innovation for English education in Thailand. Nevertheless, teaching facilitation and contextualization of learning are crucial to maximize students' critical thinking.

The integration of Problem - based Learning (PBL) Method with Digital Storytelling (DST) demonstrated a practical significance of 2% for Thai students' speaking skills, surpassing the 75% criterion. Improvements were noted in Fluency and Accuracy, Grammatical and Lexical Features, and Corrective Feedback and Evaluation, with scores 3.67% and 2.33% higher than the set criterion of 75%. These gains can be attributed to factors such as increased opportunities for English communication, collaborative learning, and reduced language anxiety. However, the Prosody component requires further attention since it scored 1% below the set criterion of 75%. This is due to insufficient language assessment. Overall, the integration of PBL with DST effectively enhances speaking skills, emphasizing the importance of structured instruction and targeted feedback for language acquisition and proficiency development.

The satisfaction rating of Thai students for the Problem - based Learning Method with Digital Storytelling was assessed across five components: Teaching, Learning, Supervision and Feedback, Course Organization, and Skill Development. All components resulted in a 'Completely Satisfied' rating with an overall mean score of 4.58. This indicates a high level of fulfillment and perceived effectiveness of PBL with DST in developing critical thinking and speaking skills. The positive ratings highlight the importance of the teacher's role, course organization, and supervision and feedback mechanisms. The students' perception underscores the potential of PBL with DST as a valuable learning innovation for English education in Thailand, suggesting its incorporation into the curriculum.

Discussion

1. Comparison of Critical Thinking to the Set Criterion of 75% after using PBL with DST

The findings demonstrate a practical significance in students' Critical Thinking (CT) skills following the implementation of Problem - based Learning (PBL) Method with Digital Storytelling (DST), surpassing the established criterion of 75%. Students showed notable development in the components of Analysis, Evaluation, and Construction, highlighting the effectiveness of the PBL Method with DST in fostering these aspects of CT.

The Analysis component has the highest mean score and indicates the most practical significance among the components, especially during the first stage of PBL with DST (Problem Identification; Brainstorming and Exploring Information). During this phase, the students were able to activate their prior knowledge and make their own assumptions based on the information presented and analyzed. These activities also helped them extract and separate relevant material from the less relevant. Most importantly, they learned to clarify meanings by detecting, avoiding, and removing ambiguity fostering sound reasoning. This stage, repeated three times by students, involves analyzing arguments about the causes, effects, and solutions of educational inequality. This process allowed them to systematically explore and discuss solutions (Saregar et al., 2024). The Evaluation component, which has the second highest mean score, is developed during the second step (Problem Analysis: Storyboarding and Scriptwriting). In this stage, the students were tasked with creating storyboards and scripts for their digital storytelling. This rigorous process requires them not only to plot their stories and write scripts but, more importantly, to evaluate arguments that are relevant to their assumptions. The students assessed whether this information is sufficient, credible, and plausible. The project's design, tasks, and assessments were purposefully rigorous to foster critical thinking. The rigorous design required students to determine relevance, plan knowledge demonstrations, and explore multiple solution pathways. In the Construction component, marking the fourth step, students presented their Digital Storytelling projects, received feedback, and refined their arguments. The process led to well-reasoned judgments and final conclusions, enhancing their decision-making skills.

However, while the Analysis, Evaluation, and Construction components exhibited significant development, the Synthesis and Reflection components did not show significant improvement. This suggests areas for further refinement within the PBL Method with DST framework.

The Inference component revealed no significant development in students' critical thinking skills, particularly during the third step (Research: Implementation and Digital Story making) of the PBL Method with Digital Storytelling, where students independently gather information and synthesize it with minimal teacher supervision. This lack of significant development is attributed to minimal teacher involvement and students' unpreparedness to interpret the implications of social issues. Similarly, the Self - Reflection component, developed during the final step (Summary and Evaluation: Publishing DST and Individual Self - Reflection), also showed insignificant development. During this stage, students publish their digital stories on YouTube and reflect on their understanding of educational inequality. The lack of application in various contexts hinders their critical thinking development, as argued by Van Gelder (2005) and Kuhn (1999), emphasizing the need for practicing these skills in diverse situations to gain a comprehensive understanding.

2. Comparison of Speaking Skill to the Set Criterion of 75% after using PBL With DST

The findings demonstrates an overall enhancement in students' speaking skills following the implementation of Problem-based Learning Method with Digital Storytelling, with an overall percentage exceeding the established criterion of 75%. Notably, three out of the four components of speaking skills—fluency and accuracy, grammatical and lexical features, and corrective feedback and evaluation—surpassed the set criterion, while prosody fell short. The efficacy of Problem-based Learning Method with Digital Storytelling in developing speaking skills is evident in its promotion of English communication opportunities, fostering a collaborative learning environment, and reducing language anxiety while enhancing self-confidence (Ossa, Rivas, & Saiz, 2023).

The grammatical and lexical features, along with the corrective feedback and evaluation components, demonstrated improvement beyond the set criterion, indicating the efficacy of the Problem - based Learning Method with Digital Storytelling in enhancing these aspects of speaking skills. Through collaborative activities such as creating storyboards and scripts, students encountered opportunities that facilitated the development of their grammatical and lexical features, expanding their vocabulary and syntactical understanding of spoken grammar. Additionally, tasks involving feedbacking, self-reflection, and peer discussion allowed students to monitor their language use, contributing to the refinement of their speaking skills (Miller & Weinert, 1988).

However, the Prosody component, which includes pauses, prominences, and pitch changes that enhance spoken interaction, revealed below-average performance and insignificant development among students. Despite the incorporation of Digital Storytelling in the PBL Method, students did not significantly improve their prosody skills, primarily due to the lack of proper language assessments. Prosody requires not just practice but also evaluation, especially for students for whom English is a second language. The absence of thorough language assessments hindered the accurate measurement of students' prosodic abilities. Additionally, effective teacher prompting during speaking tasks, as described by Harmer (2001) and Koran (2015), is crucial for student motivation and encouragement, but it must be carefully balanced to avoid over-reliance.

3. Investigation on the Satisfaction of the Students after Using PBL With DST

The results indicate a high level of satisfaction among students regarding the implementation of Problem-based Learning (PBL) Method with Digital Storytelling (DST), with all components achieving a 'Completely Satisfied' rating. Students expressed satisfaction with Teaching, Learning, Supervision and Feedback, Course Organization, and Skill Development. The use of the PBL Method with DST proved effective and engaging, providing students with opportunities for independent, student-centered learning facilitated by the teacher as a guide rather than a primary source of knowledge. This approach aligns with modern pedagogical trends emphasizing active learning and student empowerment (Trullàs et al., 2022).

Among the components of satisfaction, Teaching received the highest ratings from students, reflecting their appreciation for the facilitative role of the teacher in guiding their learning journey. Students valued the teacher's support in fostering critical thinking and speaking skills through engaging, non - lecture methods. Similarly, the integration of Digital Storytelling enriched the learning experience by offering creative teaching

methods and personalized learning opportunities (Moradi & Chen, 2019). This approach, combined with the teachers' facilitation and encouragement of independent thinking, significantly contributed to students' satisfaction and confidence in their learning process (Susanti, Suyanto, Jailani, & Retnawati, 2023).

Skill Development ranked second in students' satisfaction, highlighting their confidence in developing critical thinking and speaking skills. Students acknowledged the value of PBL activities in promoting active knowledge construction and fostering collaborative problem-solving, which enhanced their critical thinking abilities (Choochana, 2020). The integration of Digital Storytelling further facilitated cognitive development and skill acquisition, enriching the learning experience, and promoting student engagement (Moradi & Chen, 2019).

Supervision and Feedback, Learning, and Course Organization were also rated 'Completely Satisfied' by students, highlighting their confidence in the effectiveness and organization of the learning process. Students appreciated the constructive feedback received from teachers and classmates throughout the PBL Method with DST activities, which contributed to their understanding and improvement. The systematic organization of the course, aligned with the steps of PBL and DST, facilitated active learning and critical thinking development, ensuring student engagement and knowledge retention (Saregar et al., 2024). Overall, students' high level of satisfaction with the PBL Method with DST underscores its effectiveness in promoting active learning, critical thinking, and skill development.

Suggestions

For Implementation

While this study has proven effective in developing the students' critical thinking and speaking skills, it is essential that Problem - based Learning Method with Digital Storytelling should be able to sustain its strengths and mitigate its shortcomings, more specifically during its implementation on teaching and learning processes. Therefore, to maximize the effectiveness of PBL with DST, the following recommendations are helpful to further enhance the use of this learning innovation.

PBL with DST fosters active learning in the classroom, as students work independently yet collaboratively. To sustain students' curiosity and motivation, incorporate more task and problem-based activities. However, it is crucial for the teacher to carefully select the activities that are appropriate for the particular skills being developed. For group tasks, assign in small groups setting so that students can find their own roles such as leader, presenter, researcher and or member. This approach helps them learn responsibility not only of their own learning but more importantly in teamwork.

Although PBL with DST is a valuable learning innovation, it is also found to be time-consuming both for planning and implementing. This would mean, the teacher needs more time to plan the learning activities and facilitate them effectively. Therefore, it is recommended that the teachers allocate more time for planning to reduce the time required for implementation. Additionally, due to its activity-based nature, it can be challenging for teachers to conduct objective assessment during and after the implementation. Consequently, the teacher should decide and determine which activities are necessary for thorough evaluation while using the others as springboards only.

Furthermore, if curriculum developers and administrators would incorporate the Problem-based Learning Method with Digital Storytelling into the curriculum, they should provide a more specific objectives, learning methods and strategies and evaluation aligned with the steps of PBL with DST. Given that the integration of PBL and DST is relatively new in the pedagogy, they should offer additional training for teachers to understand their crucial role in facilitating the learning process throughout DST.

Finally, the effectivity and efficiency of PBL with DST does not depend on one person; like other methods, it requires a collaborative effort from all those involve in the teaching and learning processes.

For Further Research

While the results showed significant development in the students' overall Critical Thinking skills, the improvement in speaking skills was less pronounced. However, certain aspects of the PBL need to be further studied to maximize its impact of on speaking skills.

For Critical Thinking, future studies should delve into analyzing how the Inference and Self - Reflection components can be further developed. The findings suggest that the teacher's lack of involvement during the development of these components as well as the readiness of the students in using these skills outside the classroom contributed to the issue. Therefore, researchers can explore the crucial role of a teacher as a facilitator on Problem - based Learning Method with Digital Storytelling. They can also investigate on how to prepare the students in using these skills independently before

learning outside the classroom.

Moreover, although the students' speaking skills showed development, it was still not significant. It appears that the researcher may have overlooked the technical aspect of the language while developing this skill. The discussed roots of this issue include a lack of language instruction, assessment, speaking strategies, and contextualization. Therefore, to further develop the students' speaking skills, researchers should investigate these aspects to determine how to address and incorporate them when using this innovation. Additionally, they can also further explore other language theories that could support these findings.

By mitigating the factors affecting the skill development of the students, the effectiveness of the Problem-based Learning Method with Digital Storytelling as a learning innovation can be maximized.

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