

Developing Students' Critical Thinking Through Digital Storytelling-Based Learning

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ABSTRACT

In the context of 21st-century education, this study highlights the value of students' critical thinking skills in English language learning within EFL learning context instruction. Nevertheless, students frequently demonstrate limited ability to apply critical thinking during classroom activities, and previous studies tend to focus more on learning outcomes than on the development developmental stages, particularly in secondary school EFL contexts. The objective of this study is to examine how Project-Based Learning through Digital Storytelling develops the critical thinking skills of Grade XI students at SMA Global Madani Bandar Lampung. Data were obtained from semi-structured interviews and classroom observations, which served as the primary techniques for data collection in a qualitative case study design. Facione's framework served as a guide for the analysis of the data utilizing the interactive analytical model introduced by Miles, Huberman, and Saldaña. The findings reveal that students' critical thinking skills developed progressively, beginning with interpretation and moving on to analysis, examination, reasoning, explanation, and self-regulation. The study concludes that integrating Project-Based Learning with Digital Storytelling effectively promotes students' critical thinking through active, collaborative, and reflective learning.

Keywords: *Project-Based Learning, Digital Storytelling, Critical Thinking, EFL, Qualitative Study*

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INTRODUCTION

In today's digital age, critical thinking has become an essential skill in English as a Foreign Language (EFL) learning. Students are expected not only to comprehend information but also to evaluate its accuracy, relevance, and reliability. As a key competency in 21st-century education, critical thinking enables students to make informed decisions and develop independent learning habits (Widyaningrum & Hartarini, 2024; Wiwikananda & Susanti, 2022).

Furthermore, critical thinking prepares learners to respond to the challenges of modern society, which is characterized by rapid information growth and increasing global demands (Nasution et al., 2025). In EFL classrooms, this skill is particularly important because students need to analyze information, express opinions, evaluate different perspectives, and communicate their ideas effectively in English.

Despite its importance, many students still struggle to demonstrate critical thinking in classroom practice. Based on teaching experience at SMA Global Madani Bandar Lampung, eleventh-grade students tend to be passive during learning activities. They rarely ask questions, demonstrate limited initiative, and show minimal engagement in analytical tasks. These conditions indicate that students need more opportunities to participate actively and develop their thinking skills through meaningful learning experiences.

This situation may be associated with teacher-centered approaches, in which students primarily receive information rather than actively participate in the learning process (Al-Shehri, 2024). Previous studies suggest that such approaches may be less effective in developing higher-order thinking skills and can reduce student motivation (Harianto et al.,

2024). Consequently, a gap exists between the critical thinking competencies expected in 21st-century education and the learning practices observed in the classroom.

To address this gap, Project-Based Learning (PBL) has been recognized as an approach that promotes active participation, collaboration, problem-solving, and reflection (Issa & Khataibeh, 2021). Through project-based activities, students can construct knowledge, investigate problems, and develop their understanding through direct engagement with learning tasks (Tafakur et al., 2023). These activities provide opportunities for students to practice critical thinking while using English for meaningful purposes.

However, the effectiveness of PBL in developing higher-order thinking skills may vary depending on its implementation and learning context. Previous research has primarily emphasized the potential and effectiveness of PBL in improving learning outcomes, while less attention has been given to how students demonstrate and develop specific critical thinking processes throughout project implementation (Zhang & Ma, 2020). Therefore, examining students' thinking processes is necessary to understand how they analyze information, evaluate ideas, solve problems, and make decisions during project-based learning.

To support PBL implementation, Digital Storytelling (DST) can be integrated as a learning medium that combines text, images, audio, and other digital elements to communicate ideas through narratives. DST encourages students to organize information, select relevant content, construct meaningful stories, and reflect on their learning experiences. Previous studies have indicated that digital storytelling can support higher-order thinking through reflection and problem-solving activities (Ahada et al., 2024; Munawar et al., 2023; Rosyid et al., 2025). Nevertheless, research examining the integration of PBL and DST in secondary school EFL contexts, particularly in relation to the development of critical thinking during the learning process, remains limited.

Therefore, this study investigates the implementation of Project-Based Learning integrated with Digital Storytelling in developing eleventh-grade students' critical thinking skills at SMA Global Madani Bandar Lampung. Rather than focusing solely on measurable learning outcomes, the study emphasizes the developmental process of students' critical thinking throughout project activities. By examining how students engage in analysis, evaluation, problem-solving, and decision-making, this study aims to provide a deeper understanding of how integrating PBL and DST can support critical thinking development in secondary school EFL learning.

METHOD

A qualitative case study approach was adopted in this study aims to explore how Project-Based Learning, when integrated with Digital Storytelling, facilitates students' critical thinking development in English language learning contexts. The participants comprised 23 eleventh-grade students selected through purposive sampling.

Through classroom observations and semi-structured interviews, data were obtained during three learning sessions. The observation and interview protocols were informed by Facione's conceptualization related to critical thinking, encompassing interpretive, analytical, evaluative, inferential, explanatory, and self-regulatory dimensions. The data were analyzed using the interactive data analysis framework developed by Miles, Huberman, and Saldaña, which includes data condensation, data display, and drawing conclusions. To enhance its credibility, methodological triangulation was employed through cross-analysis of observational and interview data.

Respondents

The respondents of this study were eleventh-grade students from SMA Global Madani Bandar Lampung, consisting of one intact class of 23 students. They were selected using purposive sampling based on their active participation in Project-Based Learning integrated with Digital Storytelling in English learning. This selection ensured the inclusion of participants who were directly engaged in the learning process and able to provide relevant

insights into the development of their critical thinking skills. In qualitative research, the sample size is determined by its relevance to the research objectives rather than statistical representation. The selected class was considered sufficient to provide in-depth and meaningful data within the scope of this research.

Instruments

Data were gathered through interviews, classroom observation, and supporting documents. The classroom observation examined students' participation, interaction, and engagement while Project-Based Learning and Digital Storytelling were being applied in the classroom. The indicators for observation referred to six components of critical thinking, including interpretation, analysis, evaluation, inference, explanation, and self-regulation, proposed by (Facione, 2023).

Next, guided interviews were carried out to explore learners' experiences, opinions, as well as their responses regarding the learning process (Creswell & Poth, 2018). Documentation, including students' digital storytelling projects and related learning logs, was also collected to support and validate the findings obtained from the observations and interviews.

Procedures

The implementation of Project-Based Learning integrated with Digital Storytelling (PBL-DST) was carried out systematically through three class meetings, with each session lasting 2 x 45 minutes. The implementation of the digital storytelling project was gradually divided into three distinct learning stages:

During the planning phase (Meeting 1 - 90 minutes), the teacher acts as an instructor and presenter, introducing the core concepts of Project-Based Learning and Digital Storytelling using a multimedia platform. The teacher provides clear project guidelines, time limits, an evaluation rubric, and prompting questions to stimulate critical thinking. Meanwhile, students focus on understanding the project objectives and thematic criteria. They form collaborative groups, brainstorm narrative ideas, and interpret the project objectives by selecting relevant themes and moral outlines.

During the implementation phase (Meeting 2 - 90 minutes), the teacher shifts roles to mentor and consultant, actively monitoring group dynamics, tracking project progress, and facilitating independent problem-solving without providing direct answers. Students engage in a hands-on digital creation process to produce a digital story that combines text, graphics, audio, and video. They analyze narrative structure, draft a script, create a storyboard, select appropriate characters, and synthesize multimedia elements on digital devices. Within their groups, they evaluate the alignment between visual assets and the emotional tone of the text, leading to active peer debate and collaborative decision-making.

During the assessment and reflection phase (Meeting 3 - 90 minutes), the teacher acts as a reflective evaluator and moderator, overseeing student presentations, assessing the final digital product, providing constructive feedback, and conducting interviews. Students showcase their completed digital story projects to the class. They explain their creative choices, justify the characters' actions, and connect the story's central moral to real-world contexts to demonstrate inference and explanation skills. Finally, they practice self-regulation by reviewing peer evaluations, identifying project limitations, and formulating adjustments for future learning. Subsequently, semi-structured interviews were conducted to investigate learners' experiences and to gain a deeper understanding of how the learning process supported the development of critical thinking abilities.

Data analysis

Data analysis was carried out by applying the interactive analytical framework introduced by Miles et al. (2014), which includes data condensation, data display, and conclusion drawing. Data condensation involved selecting, simplifying, and arranging the information obtained from observations, interviews, and documentation; the condensed facts

were then presented as descriptive explanations to support interpretation; finally, data and patterns related to the progression of students' critical thinking skills were identified.

Facione's framework for critical thinking, which comprises interpretive and analytical aspects, evaluation, inference, explanation, and self-regulation, served as the basis for the analysis. These metrics were used to examine how students' critical thinking abilities changed and evolved as Project-Based Learning through Digital Storytelling was implemented. Data markers were used to code each segment of observational and interview data in order to identify trends in the cognitive processes of the pupils. Because the research was conducted repeatedly, themes and categories gradually emerged from the data.

Triangulation was applied by comparing data obtained from different sources, including observations, interviews, and documentation, to strengthen the trustworthiness of the data. To reinforce the credibility and reliability of the findings, the researchers further confirmed that the results were consistent across other data sources.

FINDINGS AND DISCUSSION

The Development of Student's Critical Thinking Skills through Project-Based Learning with Digital Storytelling

Findings of the present research indicated that applying Project-Based Learning in conjunction with Digital Storytelling (PBL-DST) enabled students' critical thinking abilities to steadily increase during the education process. Three meetings consisting of observations from the classroom were used to identify the development of these skills, and the findings were corroborated by information gathered from interviews with particular students. During the implementation, students showed several dimensions of higher-order thinking described by [Facione \(2023\)](#), including interpretive, analytical, evaluative, inferential, explanatory, and self-regulatory dimensions.

The development of these indicators did not happen at the same time; rather, students showed a progressive progression from simple comprehension to more sophisticated and reflective thought processes. Students primarily displayed interpretation skills in the early learning stages; as the project developed, they started to show analysis and evaluation skills during group discussions and project development activities; and in the final stage, they showed more sophisticated indicators like inference, explanation, and self-regulation during presentations and reflection activities.

Rather, students showed a steady transition from simple comprehension to more intricate and introspective thought processes. Students generally displayed their ability to interpret in the early stages of learning. As the project developed, students started to demonstrate their analytical and evaluative abilities in group discussions and project development exercises. During presentations and reflection exercises in the last phase, students showed more sophisticated indications including inference, explanation, and self-control.

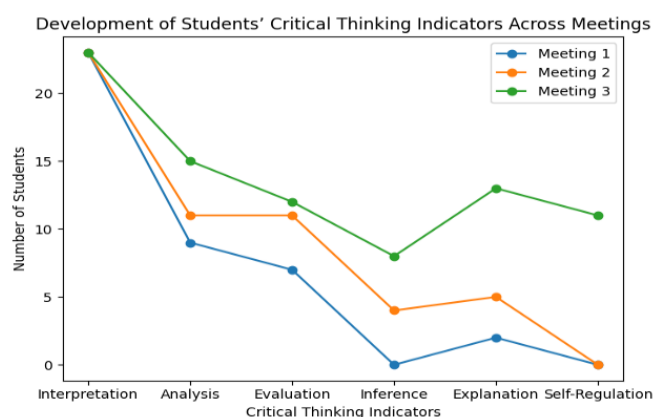


Figure 1. Evolution of Students' Critical Thinking Measures Throughout Meetings

As indicated by Figure 1, interpretation continually emerged as the most prevalent signal during the course of the three meetings. In the first meeting, almost all students displayed interpretive abilities as they attempted to understand the project instructions, identify the story's theme, and interpret the goal of the Digital Storytelling project. At this stage, students focused primarily mostly on understanding the work goals and discussing initial ideas with their group participants. However students were able to respond to instructions properly, their relationship was still a little limited and many students stayed to rely on the teacher directions during discussions.

This initial cognitive decoding stage was clearly captured in the classroom observation records:

"When the teacher introduced the narrative theme 'Social Media and Mental Health,' students in Group 2 spent 15 minutes debating the core message of the prompt. They actively decoded the vocabulary in the rubric to clarify whether their story needed to focus on solutions or just the problems."
(Observation Note, Meeting 1)

Interview findings support this observation. Several students indicated that the teacher's explanations helped them comprehend the learning objectives and project methods more clearly. However, several students initially struggled since they were inexperienced with generating digital stories using Canva and other digital tools. Through interactive discussions and teacher direction, students eventually gained more confident in comprehending the project process. Through discussions together and teacher guidance, students gradually felt more confident in understand the project process. A student interview transcript highlights this collaborative transition:

"At first, my group was confused about how to turn a simple narrative paragraph into a digital script. But after analyzing the teacher's guidelines and discussing the rubrics together, we could finally map out what our character's main conflict should be." (Student Interview, S4)

These findings imply that interpretation serves as a basic stage in supporting students' critical thinking skill development during the application of Project-Based Learning through digital storytelling.

In the next meeting, students got started demonstrating various indicators of critical thinking, notably analysis and evaluation. During the project development stage, students participated to develop a digital story by structuring the storyline, selecting characters, identifying the environment, and mixing visual and audio elements. This process motivated students examine ideas, analyze options, and listen to story elements before making conclusions.

Analytical practices were highly visible during the technical assembly phase of the assignment:

"Students in Group 4 were observed carefully comparing three different background tracks on Canva. They explicitly debated whether a low-tempo acoustic track or a sharp electronic sound would better reflect the growing anxiety of the main character." (Observation Note, Meeting 2)

Students also began to evaluate if the pictures, background music, and dialogue matched the story's storyline and emotional tone. These critical evaluative metrics were directly embedded within the structural design of the students' completed digital storytelling products. For instance, in a student-generated video project titled *"The Silent Screen,"* the group deliberately utilized high-contrast, black-and-white graphics to depict online isolation, switching to vibrant colors only when the protagonist sought real-world help. This creative layout choice demonstrated an evaluative control over how multimedia assets correspond with narrative meaning.

Group discussions developed into more dynamic as students actively exchanged ideas and presented logical arguments for their conclusions. A student highlighted this evaluative peer exchange during the interview session:

"We evaluated our script again and realized that a realistic, open ending would make the audience think harder about the dangers of cyberbullying. We chose the visuals specifically to support that impact." (Student Interview, S11)

These findings indicate that students were no longer only focused on understanding instructions but also engaged in deeper cognitive processes throughout project development. These findings are consistent with earlier research showing that Project-Based Learning enhances analytical thinking and collaborative problem-solving (Chowdhary et al., 2025).

In the third session, students displayed more advanced critical thinking skills, notably inference, explanation, and self-regulation. During presentations and reflection sessions, students were able to describe their tales, identify moral themes, and justify the creative decisions made in their digital storytelling projects. Students also reacted to queries and feedback from peers and professors with reasonable explanations.

Based on these demonstrations, evidence of inference developed when students connected the story's moral principles to real-life situations, such as teamwork, friendship, and cooperation. Indicators of explanation were seen when students defined decisions of characters, graphics, and background music. A distinct instance of verbal explanation occurred during the classroom presentations:

We designed the main character as a student who overcomes academic peer pressure. We want to show our classmates that seeking help is not a weakness, but a critical step in self-preservation." (Classroom Presentation, Group 3)

Furthermore, self-regulation became more visible when students acknowledged shortcomings in their projects and pondered on possible adjustments after getting comments. This metacognitive monitoring was explicitly captured in the post-project student feedback loops:

"Looking back at our video, we realized the voiceover text in scene three was way too fast because we were rushing to meet the time limit. If we could do it over, we would reduce the text density." (Student Interview, S18)

Overall, the findings suggest that combining Project-Based Learning with Digital Storytelling enables a collaborative and reflective learning atmosphere designed to promote the continuous enhancement of students' critical thinking throughout the learning process.

CONCLUSIONS

The findings suggest that integrating Project-Based Learning (PBL) with Digital Storytelling (DST) supports the gradual development of students' critical thinking skills in English as a Foreign Language (EFL) learning. These skills progress from interpretation to analysis and evaluation, encompassing reasoning, justification, and metacognitive regulation. The integration also creates an engaging and meaningful learning environment that encourages active participation, collaboration, and reflective thinking. These findings highlight the potential of PBL integrated with DST as a pedagogical approach to fostering critical thinking development. For EFL teachers, the findings emphasize the importance of designing structured project milestones that guide students from text interpretation to digital creation and reflection. Curriculum developers should incorporate digital storytelling and higher-order problem-solving tasks into English learning frameworks and instructional guidelines. Future researchers should conduct longitudinal studies to examine how students' digital readiness influences the progression of critical thinking skills across different learning contexts.

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