

DEVELOPING A CANVA-ASSISTED PROBLEM-BASED LEARNING MODEL TO ENHANCE CREATIVE THINKING AND DIGITAL LITERACY IN EFL CLASSROOMS

Silmi Fauziyah Rhidwan^{1*}, Herri Mulyono², Suhud Aryana
silmifauziyahrhidwan@ikipsiliwangi.ac.id, hmulyono@uhamka.ac.id,
suhudaryana@ikipsiliwangi.ac.id id.

IKIP SILIWANGI

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ABSTRACT

This study aims to develop and evaluate a learning model for enhancing students' creative thinking and digital literacy in Procedure Text instruction. The study employed a Research and Development (R&D) design adapted from Borg and Gall (1983), consisting of needs analysis, planning, product development, expert validation, revision, field testing, and final revision. The participants were tenth-grade vocational students majoring in Accounting and three expert validators. Data were collected through questionnaires, pre- and post- surveys, and semi structured interviews. The expert validation results indicated that the developed model was highly valid ($M = 4.36$; 87.2%). The implementation of the TA-PBL model also showed statistically significant improvements in students' creative thinking and digital literacy based on the Wilcoxon Signed-Rank Test ($p < .001$). These findings suggest that integrating Canva throughout the Problem-Based Learning process provides meaningful opportunities for students to develop creative thinking, digital literacy, and active engagement in authentic learning tasks. Therefore, the developed TA-PBL model is considered a valid, practical, and effective instructional model for Vocational EFL classrooms.

Keywords: Problem-Based Learning, Creative Thinking, Digital Literacy, Canva- Assisted Technology Learning, Vocational EFL

A. INTRODUCTION

The rapid growth of digital technology has significantly transformed educational priorities in the twenty-first century, shifting the focus from basic knowledge acquisition toward the development of higher-order thinking skills and digital competence. In contemporary learning environments, digital platforms enable students to access a wide range of information, collaborate with others, and engage in interactive, multimodal learning experiences (Mulyono & Suryoputro, 2020). In addition, informal digital engagement has been shown to contribute to students' creativity by exposing them to new ideas (Mulyono et

Rhidwan, F.S., Mulyono, H. & Aryana, S. Developing A Canva-Assisted Problem-Based Learning Model ... al., 2024). Despite these opportunities, many teachers still encounter difficulties in integrating digital tools effectively into classroom practices (Winola, 2021).

In the context of vocational high schools, students’ are expected to possess not only academic knowledge but also practical skills such as creativity, problem-solving, and digital adaptability to meet workplace demands. However, classroom practices often remain teacher-centered and rely heavily on textbooks, which limits students’ active participation and creative engagement. Previous studies suggest that digital storytelling and technology-supported instruction can promote interactive learning add (Syatroh et al., 2025). In language learning, creative thinking is reflected in students’ ability to interpret information, generate ideas, and produce original responses through literacy-based activities.

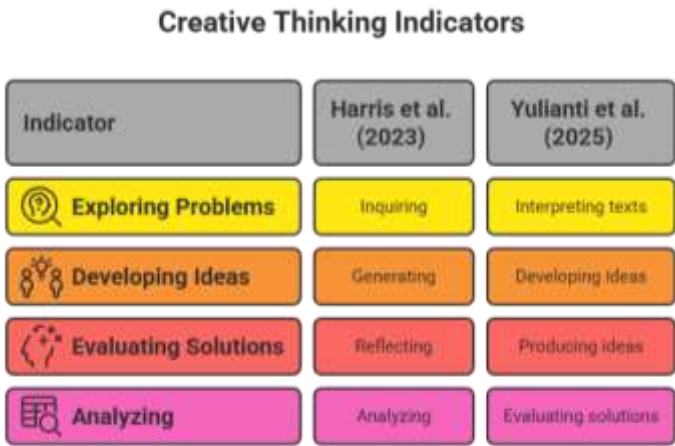


Figure 1. *Creative Thinking Framework*
(Adapted from Yulianti et al., 2025; Harris et al., 2023).

Creative thinking involves a set of cognitive processes, including inquiry, idea generation, reflection, and analysis Harris et al., 2023). In EFL contexts, these processes can be observed, and in language learning it is shown through students’ ability to interpret and evaluate ideas (Yulianti et al., 2025). Recent studies also highlight the importance of learning environments that encourage exploration and collaboration in fostering students’ creative thinking skills (Paz-Baruch et al., 2025). One instructional approach that aligns with these principles is Problem-Based Learning (PBL), which engages students in solving authentic problems collaboratively and promotes active knowledge construction.

However, the implementation of PBL in Vocational EFL classrooms is still limited, and many learning activities remain dominated by teacher explanations. At the same time, digital literacy defined as the ability to access, analyze, evaluate, and create digital information has become an essential competency in technology-supported learning (Li et al., 2024; Zhang, 2025). These competencies are crucial for enabling students to participate effectively in digital learning environments and to develop higher-order thinking skills.

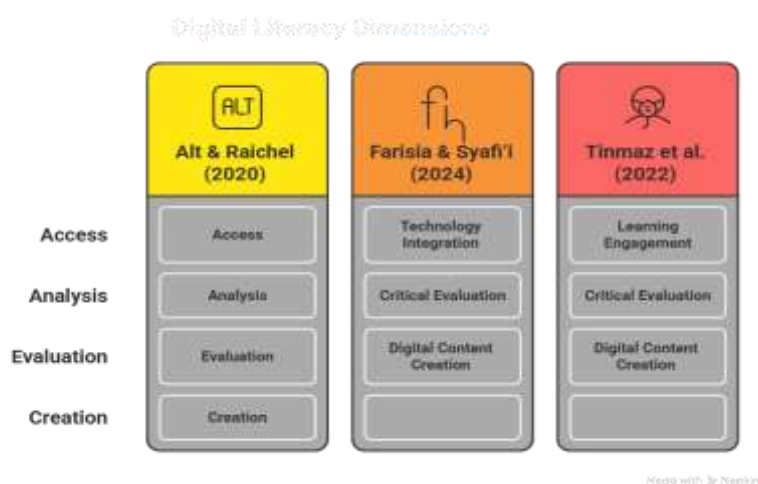


Figure2. Digital literacy framework
(Adapted Alt & Raichel, 2020);(Farisia & Syafi'i, 2024);(Tinmaz et al., 2022)

Problem-Based Learning (PBL) is a constructivist and student-centered approach that encourages students to solve authentic problems collaboratively and develop critical thinking and problem-solving skills (Sisternans, 2020). Recent studies have shown that PBL improve students' conceptual understanding and learning outcomes through authentic problem-solving activities (Funa, 2026). The integration of technology into PBL has been reported to enhance students' engagement and learning outcomes (Teng & Wang, 2021; Mahfudhoh & Andrijati, 2024). Furthermore, digital learning modules support interactive learning experiences, enabling students to participate more actively in the learning process (Houghton, 2023). This highlights the importance of integrating pedagogical approaches with appropriate digital tools to enhance learning effectiveness. One digital platform that supports this approach is Canva, which enables students to create visually engaging learning materials and communicate ideas effectively. Canva-based learning media have also been found to improve students' creative thinking and digital literacy (Susilo et al., 2025; Wulandari & Utama, 2025).

Previous studies consistently reported that technology-supported instructional approaches, including problem-based learning, project-based learning, and blended learning, improve students' higher-order thinking, creativity, engagement, and digital literacy (Kusumawati et al., 2022; Patmanthara & Hidayat, 2021; Nasution et al., 2025; Yolanda et al., 2025). Likewise, Canva-based instruction has been found to support visual communication and digital content creation, leading to improvements in creative thinking and digital literacy Studies (Susilo et al., 2025; Wulandari & Utama, 2025). However, these studies mainly employed Canva as a learning medium rather than integrating it into a structured pedagogical model. Few studies have developed and validated a technology-enhanced Problem-Based Learning model that systematically integrates Canva throughout the PBL process to foster both creative thinking and digital literacy in vocational EFL classrooms. Unlike previous studies, this research develops a Canva-Assisted Technology-Enhanced Problem-Based Learning (TA-PBL) model that integrated Canva into every stages of PBL, including problem orientation, investigation, collaboration, product creation, and reflection. Therefore,

Rhidwan, F.S., Mulyono, H. & Aryana, S. Developing A Canva-Assisted Problem-Based Learning Model ... this study aims to develop and evaluate the TA-PBL model for teaching Procedure Text in vocational EFL classrooms.

B. METHOD

This study employed a Research and Development (R&D) design adapted from Borg and Gall (1983) to develop a Canva-Assisted Technology-assisted Problem-Based Learning (TA-PBL) model for teaching Procedure Text in vocational EFL classrooms. The Borg and Gall model remains widely used because it provides an iterative process of development, validation, field testing, and revision that can be adapted to different educational contexts (Assirri et al., 2026). The development process included product development, expert validation, preliminary field testing, product revision, and main field testing to evaluate the model’s feasibility and effectiveness.

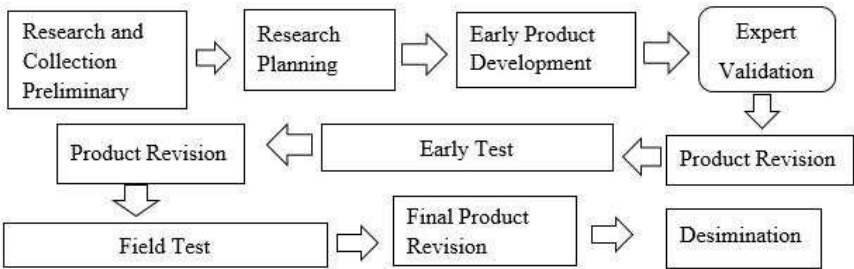


Figure 1. Research and Development Model
Adapted from Borg and Gall (1983).

Participants

The participants consisted of three expert validators and tenth-grade Accounting students from a vocational high school. The preliminary field testing involved 10 students (4 males and 6 females), while the main field testing involved 33 students (14 males and 19 females), all aged 15-16 years. The participants were selected through purposive sampling because they were enrolled in the Procedure Text unit and represented the target users of the developed model. Their English proficiency was at the basic to intermediate level based on the English teacher’s assessment.

Research Instruments, Data Collection, and Analysis

Data were collected through needs analysis questionnaires, expert validation sheets, practicality questionnaires, pre- and post- surveys, and semi-structured interviews. The validation data were analyzed using mean scores and percentages with the criteria of very valid (81-100%), valid (61-80%), quite valid (41-60%), invalid (21 – 40%), and very invalid (0-20%) following (Hidayat et al., 2023) .Following expert validation, the model was implemented in two meetings for the preliminary field testing, with each meeting lasting 180 minutes (4 x 45 minutes). Students completed the pre- and post- surveys, while interviews were conducted after the implementation. Descriptive statistics were used to summarize the survey responses. The expert validation results are presented in Table 1.

Table 1. Expert Validation of the Developed Model

Validation Aspect	V1	V2	V3	Mean	%	Category
Content relevance	4.00	4.00	4.00	4.00	80%	Valid
Instructional design	4.00	5.00	4.00	4.33	86.6%	Very valid
Learning activities	4.17	4.83	4.00	4.33	86.6%	Very valid
Practicality	3.75	4.50	4.00	4.08	81.6%	Very valid
Language	4.00	5.00	5.00	4.67	93.4%	Very valid
Overall	-	-	-	4.36	87.2%	Very valid

Content validity was established through expert validation and inter-rater reliability was confirmed using the Percentage Agreement method (97.38% for digital literacy rubric and 91.41% for the creative thinking).

C. FINDINGS AND DISCUSSION

Findings

The needs identified students' learning needs in Procedure Text and showed high levels of technology integration (87.3%), creative thinking engagement (87.0%), and critical evaluation (86.8%). However, digital content creation received a moderate score (83.0%), indicating that students still required structured guidance in organizing procedural steps and producing digital products. Based on these findings, Canva-Assisted Technology-Enhanced Problem-Based Learning (TA-PBL) model was developed to support students' creative thinking and digital literacy.

Table 2. Student's practicality questionnaire results (N=33)

Practicality Indicator	Mean	%	Category
Technology Integration	3.49	87.3	High
Creative Thinking	3.48	87.0	High
Critical Evaluation	3.47	86.8	High
Digital Content Creation	3.32	83.0	Moderate
Overall	3.44	86.0	High

The preliminary field testing indicated that students actively participated in digital-based PBL activities (90%) and completed problem orientation tasks successfully (80%). However, lower achievement was found in identifying problems (55%) and providing analytical reasoning (40%). Therefore, the model was revised by incorporating guiding questions, clearer task instructions, and multimedia support before the main field testing. The results indicate that students were familiar with technology-supported learning but still required guidance in producing structured digital content.

Indicator	% Achieved
Ability to engage in PBL activities using digital media	90%
Completing problem orientation and initial reflection	80%
Identifying problems and errors in Procedure Text	55%

Providing analytical reasoning during problem investigation	40%
Participating in collaborative discussion and peer response	65%

Table.3 *Results of the Preliminary Field Testing*

Students' self-reported creative thinking showed an overall improvement after the implementation of the revised TA-PBL model (Table 4). The Wilcoxon Signed-Rank Test confirmed a statistically significant improvement ($Z = -3.963$, $p < .001$), with large effect size ($r = .69$).

Table 4. The results of data analysis of students' creative thinking

Question	CT Pre- Survey/33		CT Post-Survey /33	
	Mean	Std. Deviation	Mean	Std. Deviation
Q1	16.94	2.828	17.03	2.756
Q2	17.27	2.541	17.52	2.539
Q3	16.97	3.566	17.12	3.333
Q4	14.97	2.801	14.97	3.801

Students' self-reported digital literacy showed slight improvement across after the implementation after the implementation of the revised TA-PBL model (Table 5). The Wilcoxon Signed-Rank Test indicated a statistically significant improvement ($Z = -4.948$, $p < .001$), with a large effect size ($r = 0.86$).

Table 5. The results of data analysis of students' digital literacy

Question	DL Pre-Survey/33		DL Post-Survey /33	
	Mean	Std. Deviation	Mean	Std. Deviation
Q1	16.85	3.355	16.97	3.167
Q2	17.27	3.135	17.33	3.099
Q3	17.06	3.082	17.42	2.716
Q4	16.55	2.818	16.67	2.700

Overall, the findings indicate positive change in students' self-reported creative thinking and digital literacy following the implementation of TA-PBL model. The interpretation of these findings is discussed in the following section.

Discussion

The findings demonstrated that the Canva-Assisted Technology Enhanced Problem-Based Learning (TA-PBL) model positively enhanced students self-reported creative thinking and

digital literacy in vocational EFL classrooms. The significant improvement identified through Wilcoxon Signed Rank-Test suggest that integrating Problem-Based Learning with digital technology provides meaningful learning experiences. These findings indicate that the developed model effectively supports students in solving authentic problems while simultaneously developing essential twenty-first-century skills.

The improvement in students' creative thinking and digital literacy can be explained by the instructional design of the TA-PBL model rather than by the use of Canva alone. Throughout the learning process, students analyzed authentic problems, discussed possible solutions, organized procedural information, and created digital products collaboratively using Canva. These learning activities encouraged students to generate ideas, evaluate information, revise their work, and communicate their solutions visually, thereby supporting the development of creative thinking and digital literacy simultaneously.

These findings are consistent with Constructivist Learning Theory, which emphasizes that learners actively construct knowledge through authentic experiences, collaboration, and reflection. In the TA-PBL model, students learned by investigating real-world problems, exchanging ideas with peers, and producing meaningful digital products. The teacher functioned as a facilitator who provided guidance and feedback throughout the learning process, enabling students to build their own understanding rather than simply receiving information.Z

These findings are consistent with recent international studies (Li et al., 2024) reported that integrating digital technology within problem-based learning enhance students' engagement and higher-order thinking through collaborative problem solving. Similarly, (Paz-Baruch et al., 2025) found that digital learning environments promote creativity by encouraging active participation and reflection. Likewise, (Z. Zhang, 2025) argued that technology integration is most effective when combined with students-centered pedagogy, rather than being used merely as a digital tool. Overall, the findings indicate that the developed TA-PBL model provides an effective pedagogical framework for integrating Problem-Based Learning with Canva to foster students' creative thinking and digital literacy in vocational EFL classrooms.

However, the improvement cannot be attributed solely to Canva. It was also influenced by collaborative learning, teacher scaffolding, and the structured problem-solving activities embedded in the TA-PBL model.

D. CONCLUSION

This study developed and evaluated a Canva-Assisted Technology-Enhanced Problem-Based Learning (PBL) model for teaching Procedure Text in EFL classrooms. The findings indicate that the developed model is valid, practical, and effective in improving students' self-reported creative thinking and digital literacy. This results suggest that integrating Problem-Based Learning with Canva provides meaningful learning experiences that support students' active participation, problem-solving, and digital product creation. Practically, the TA-PBL model offers English teachers an alternative instructional approach for integrating

Rhidwan, F.S., Mulyono, H. & Aryana, S. Developing A Canva-Assisted Problem-Based Learning Model ... technology into EFL instruction while fostering students' creative thinking and digital literacy.

This study has several limitations. It was conducted in a single vocational high school with relatively small sample size and a short implementation period, limiting the generalizability of the findings. Future research is recommended to implement the TA-PBL model in different educational contexts with larger samples and longer intervention periods to examine its long-term effectiveness and broader applicability.

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