



Digital Reflective Teaching-Based English Teacher Professional Development Management Model to Improve Students' Pedagogical Competence and Critical Literacy

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ABSTRACT

Objective: The aim of this research is to develop and test a digital reflective teaching-based English teacher professional development management model to improve students' pedagogical competence and critical literacy.

Method: The research method uses research and development (R&D) through five stages, namely preliminary study, model design, expert validation, testing at SMP Negeri 13 Magelang, and model revision. Data were obtained through focus group discussions with education experts and practitioners, as well as field experiments using a nonequivalent control group design. Qualitative analysis was performed on the FGD results, while quantitative data were analyzed using ANCOVA and N-Gain tests. **Results:** The results showed that the developed model included a cycle of competency reflection, performance assessment, self-development plan preparation, learning implementation, digital reflection (teachers, students, peers), and comprehensive evaluation that was repeated to support the improvement of teachers' pedagogical competencies. The implementation model in English subjects at SMP Negeri 13 Magelang has a significant influence on students' critical literacy (sig. 0.000). The average N-Gain score of the experimental class (0.60) was higher than that of the control class (0.38), with the greatest increase in the indicator of focusing on sociopolitical issues. These findings prove that the integration of digital reflective teaching not only strengthens the management of teachers' professional development but also has a positive impact on the quality of learning and the strengthening of students' critical literacy in the era of education 4.0.

INTRODUCTION

Educational transformation in the digital era has intensified the demand for teachers to continuously develop their professional competence in response to evolving pedagogical and technological challenges. However, despite the growing discourse on Education 4.0 (Himmetoglu et al., 2021; Matsumoto-Royo et al., 2021), and lifelong learning, teacher professional development (TPD) practices in Indonesia remain largely fragmented, procedural, and short-term oriented (Ahmad, 2017; Lim et al., 2020). Many professional development programs emphasize training completion rather than sustained pedagogical improvement, with limited follow-up mechanisms, weak contextual relevance, and the absence of systematic reflective practices (Haleem et al., 2022; Mayes et al., 2015). This certainly has an impact on the development of teacher professionalism in learning and achieving learning objectives.

English is a subject that has an important role in developing 21st century skills because English language skills are used to communicate, collaborate and work together internationally. English teachers are therefore required to demonstrate strong pedagogical competence to design, implement, and evaluate learning effectively (Castro-Carracedo, 2024; Paschal & Gougou, 2022), while simultaneously promoting students' higher-order thinking abilities, including critical literacy (Abdel Latif, 2022).. Critical literacy enables students to analyze, evaluate, and reflect on information

critically in digital and multilingual contexts, making it an essential competence in contemporary English education (Prada Arias et al., 2022). Nevertheless, the development of students' critical literacy is difficult to achieve when English teachers lack access to professional development models that are relevant, continuous, and pedagogically grounded (Feyza & Seyda, 2023).

Empirical evidence from local contexts, such as junior high schools in Magelang City, reflects broader national challenges in Indonesian TPD. The teacher workforce at this level is dominated by novice and junior teachers, while intermediate and senior teachers account for less than 20% of the total population. This structural condition is compounded by internal barriers, including limited motivation and awareness of professional growth, as well as external constraints such as ineffective management, irrelevant training content, insufficient facilities, and limited time for sustained professional learning (Arulsamy et al., 2023; Ramli et al., 2018). Similar challenges are reported at the national level, where TPD programs frequently fail to align with teachers' contextual needs and classroom realities.

Several research results in Indonesia show that teacher professional development is less effective because it is less focused on desires and less reflective action. Revina et al. (2023), identify four persistent issues: professional development activities that do not address subject-specific needs, training materials that are disconnected from local contexts, the absence of structured reflection on teaching practices, and minimal institutional support for post-training implementation. These findings highlight a critical gap in Indonesian TPD namely, the absence of a professional development management model that integrates relevance, continuity, and systematic reflection.

Previous research consistently demonstrates that reflective teaching plays a central role in sustainable professional development. Continuous and constructive reflection enhances teachers' metacognitive awareness, enabling them to identify instructional challenges and plan pedagogical improvements (Chen & Chen, 2022). Moreover, sustainable reflective practices support teachers in adapting instructional strategies to student contexts, collaborating with peers, and independently developing pedagogical innovations (Darling-Hammond et al., 2017; Lubis, 2018). In this regard, integrating digital technology into reflective teaching practices offers strategic advantages by enabling systematic documentation, collaborative reflection, and evidence-based professional learning (Machost & Stains, 2023; Zhang, 2023).

Recent findings further emphasize that digitally supported reflective practices—such as e-portfolios, online reflective journals, and digital mentoring platforms—can significantly enhance teachers' pedagogical awareness and professional collaboration (Damanik, 2024; Rozimela et al., 2025). Building on these insights, this study seeks to develop and validate a Digital Reflective Teaching (DRT) based professional development management model for English teachers that supports sustainable pedagogical improvement and strengthens students' critical literacy. Therefore, this study develops and tests a model that systematically integrates digital and collaborative reflection, this model is contextual and based on evidence related to the ongoing competency challenges in teacher professional development in Indonesia.

RESEARCH METHOD

This research is a research and development (R&D) study with five stages, namely: (1) a preliminary study to identify the need for model development; (2) the design of a

reflective digital integration model in teacher professional development; (3) expert validation to assess the feasibility of the model; (4) limited trial on English teachers of SMP Negeri 13 Kota Magelang, 2 people with the same educational background in English and class VIII students; and (5) model revision based on the test results. Data collection was conducted through focus group discussions (FGD) and field implementation. A focus group discussion was conducted to explore contextual information and identify needs for model development. The FGD involved 15 participants representing diverse professional backgrounds, including one lecturer in educational management, one lecturer in English education, one lecturer specializing in learning theory, one subject-matter expert lecturer, two vice principals responsible for curriculum and competency development, four English teachers, and five master's program students.

The teacher's pedagogical competence instrument consists of three components: a teacher observation rubric, a teacher self-assessment questionnaire, and a student perception questionnaire. The observation rubric assessed teachers' pedagogical skills based on competency indicators using a 0–4 rating scale, while the two questionnaires employed a five-point Likert scale (1–5) to evaluate aspects such as lesson planning, use of ICT, reflection, classroom climate, and student engagement. Data from the three instruments were interpreted into four categories: low, fair, good, and very good. Content validity was examined by three experts in education and language pedagogy to ensure item relevance and clarity, while reliability testing showed Cronbach's Alpha coefficients of 0.87 for the observation rubric, 0.89 for the teacher self-assessment, and 0.91 for the student perception questionnaire. These results indicate that the instruments were valid and reliable for comprehensively assessing teachers' pedagogical competencies (Eliyawati et al., 2023; Norlizam et al., 2025).

Implementation was carried out in a control class and a classroom implementation model developed to test the model's impact on students' critical literacy skills. The implementation test was conducted at SMP N 13 Magelang City, involving 64 students. The control class received English instruction using conventional teaching methods without the integration of Digital Reflective Teaching, whereas the experimental class received English instruction integrating Digital Reflective Teaching. Both groups were administered a pretest and a posttest to measure students' critical literacy skills before and after the intervention. The experimental design is presented in Table 1.

Table 1. Learning Implementation Design

Group	Pretest	Treatment	Posttest
Control Group	O ₁	X ₁ (English instruction without Digital Reflective Teaching)	O ₂
Experimental Group	O ₃	X ₂ (English instruction with Digital Reflective Teaching)	O ₄

Notes:

O₁ and O₃ = Pretest of students' critical literacy skills

O₂ and O₄ = Posttest of students' critical literacy skills

X₁ = Conventional English instruction without Digital Reflective Teaching

X₂ = English instruction integrating Digital Reflective Teaching

Data analysis used a mixture of qualitative and quantitative analysis. Data from Focus Group Discussions (FGD) were analyzed qualitatively through transcription, reduction, and categorization stages. The results of the discussion were transcribed verbatim, then selected to extract information relevant to the research objectives. This

information was then grouped into main themes, such as teacher needs, the use of digital technology, and learning reflection strategies. From this analysis, the researchers drew conclusions that formed the basis for formulating the components and syntax of the digital reflective teaching model.

The data implementation model is explained using ANCOVA (Analysis of Covariance) to determine the effectiveness of the developed model in improving students' critical literacy. Before the effectiveness test was carried out, prerequisite tests were conducted, including tests of initial condition similarity, normality, and homogeneity to meet the statistical assumptions of inferential testing. The experimental data were also analyzed using the N-Gain test to conclude the magnitude of increase in each critical literacy indicator obtained. The N-Gain categorization was based on Table 2.

Table 2. N-Gain Categorization.

Normalized Gain Value	Interpretation
$0,70 \leq g \leq 1,00$	High
$0,30 \leq g < 0,70$	Moderate
$0,00 < g < 0,30$	Low
$g = 0,00$	No Increase
$-1,00 \leq g < 0,00$	Decrease

(Hake, 1997)

RESULTS AND DISCUSSION

Results

Teacher Professionalism Development Model

The teacher professional development model in this study was formulated through Focus Group Discussion (FGD) involving lecturers specializing in learning, lecturers specializing in English language, deputy principals in charge of competency development, and English teachers as practitioners. This discussion produced a number of important findings which were then synthesized into a digital reflective teaching-based teacher professional development management model.

The first finding shows that current teacher reflection practices are individual in nature, sporadic, and poorly documented. This condition makes it difficult to use reflection as a reference for continuous development. Learning experts argue that reflection will be more meaningful if it is carried out in a structured, continuous, and evidence-based manner. Therefore, the use of digital media integrated into reflection activities is important to develop in order to document the teacher reflection process so that it is more systematic and can be traced back as a basis for decision making in self-development. In addition, the reflection system must also be designed by integrating input from three main sources, namely individual reflection, peer reflection, and student feedback.

The second finding, experts in English language teaching emphasized that in the current learning context, it is important to combine pedagogical competence and mastery of the subject matter, meaning that reflective activities should not only focus on teaching strategies, but also on how the English content being taught can encourage students' critical literacy skills. English language learning has the potential to develop

students' critical literacy through a variety of global information, including assessing, analyzing, and responding to issues in a social context.

The next finding, highlighted by the deputy principal for teaching and competency, was that teacher self-development plans often remain mere administrative documents without any real follow-up. According to him, the professional development model should be able to produce contextual and applicable self-development plans that are in line with school programs and integrated with the teacher performance evaluation system. Experts also emphasized that in the professional development of teachers, it is important to conduct a comprehensive evaluation that combines digital reflection, learning observation, and teacher performance assessment as a basis for policy-making at the school level.

The discussion also yielded insights from English teachers as practitioners that reflection often stops at personal contemplation without being translated into concrete actions in the classroom. They emphasized the need for a reflection mechanism that directly encourages the implementation of learning as a follow-up. Thus, each reflection can be retested in the form of learning innovations, for example through collaborative learning strategies, the application of formative assessment, and the use of digital media to facilitate student engagement. Teachers also consider feedback from students and peers to be invaluable in enriching their perspective on reflection.

Overall, the FGD results indicate that the development of teacher professionalism based on Digital Reflective Teaching should be structured as a continuous and cyclical process. This cycle comprises six interconnected stages: (1) reflection on pedagogical competence and performance assessment, (2) development of teacher competence and performance profiles, (3) formulation of self-development plans, (4) implementation of classroom teaching practices, (5) digital reflection involving teachers, students, and peers, and (6) comprehensive evaluation of pedagogical competence development. The synthesis of these stages is translated into a Digital Reflective Teaching-based English Teacher Professional Development Management Model, as illustrated in Figure 1

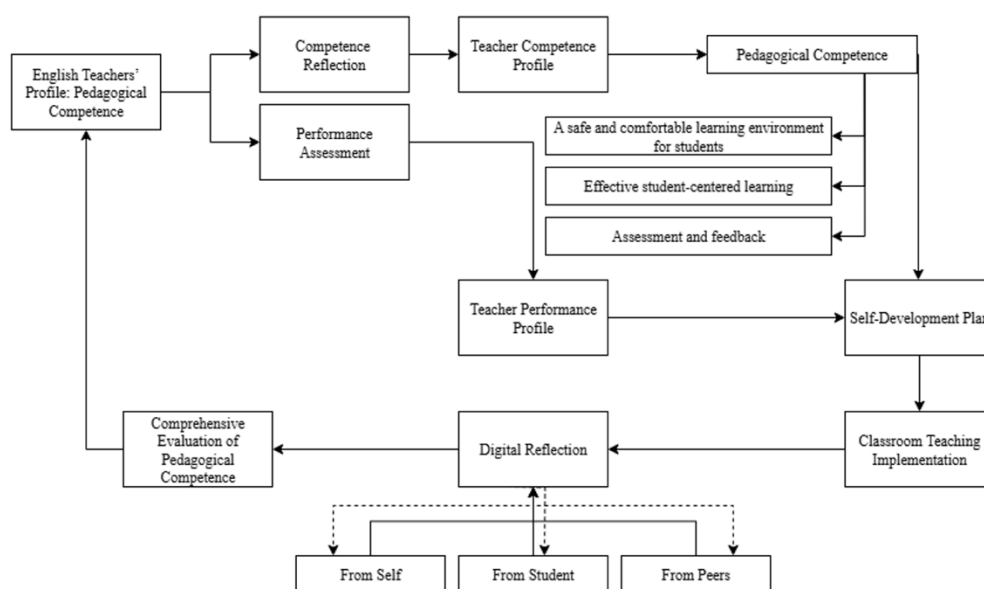


Figure 1. Digital Reflective Teaching-Based English Teacher Professional Development Management Model.

Figure 1 presents a cyclical professional development management model that integrates competence reflection, performance profiling, self-development planning, classroom teaching implementation, digital reflection, and comprehensive evaluation. Digital reflection functions as a central mechanism that facilitates systematic documentation and multi-source feedback from teachers, students, and peers. This cyclical structure ensures that teacher professional development is sustainable, reflective, and closely aligned with classroom practices, thereby supporting the continuous improvement of pedagogical competence and the development of students' critical literacy.

Implementation of Digital Reflective Teaching on Teachers' Pedagogical Skills

The results of the measurement of English teachers' pedagogical skills at SMP Negeri 13 Magelang are presented in Table 1. The data were obtained through three types of instruments: a teacher observation rubric, a teacher self-assessment questionnaire, and a student perception questionnaire, which were administered before and after the learning process. The tabulated data indicate a consistent improvement across all aspects of pedagogical competence after the implementation of the instructional intervention. Summary of teachers' pedagogical competence scores before and after instruction in Table 3 below:

Table 3. Summary of Teachers' Pedagogical Competence Scores Before and After Instruction

Nu.	Assessed Aspect	Instrument	Pre-Test Score	Post-Test Score	Pre-Test Category	Post-Test Category	Improvement
1	Classroom behavior management	Teacher Observation	2.5	3.8	Fair	Very Good	1.3
2	Structured and sequential lesson planning	Teacher Observation	2.8	3.9	Fair	Very Good	1.1
3	Student-centered assessment design	Teacher Observation	2.4	3.6	Fair	Good	1.2
4	Reflective teaching ability	Teacher Self-Assessment	3.0	4.2	Good	Very Good	1.2
5	Use of ICT in learning	Teacher Self-Assessment	2.6	3.7	Fair	Good	1.1
6	Safe and comfortable classroom climate	Student Perception	3.1	4.3	Good	Very Good	1.2
7	Active student engagement	Student Perception	2.7	4.0	Fair	Very Good	1.3
8	Provision of feedback on learning outcomes	Student Perception	2.8	4.1	Fair	Very Good	1.3
9	Encouragement of critical thinking and discussion	Student Perception	2.5	3.9	Fair	Very Good	1.4

In general, the average pedagogical skill score before the learning process was 2.7 (Fair) and increased to 4.0 (Very Good) after the learning intervention. This improvement demonstrates a positive impact of the instructional model on enhancing teachers' pedagogical competence. The most significant progress was observed in the

aspect of encouraging students' critical thinking and discussion, which increased by 1.4 points, followed by active student engagement, which rose by 1.3 points. These results indicate that teachers became more effective in applying student-centered teaching strategies that promote participation and higher-order thinking skills.

Other findings indicate that there is an improvement in classroom management and feedback indicating that teachers' abilities have increased so that they can support students' academic and behavioral development. The observation results revealed that teachers became more capable of structuring lesson plans and designing assessments aligned with learning objectives. The self-assessment results indicated that teachers were more reflective and able to evaluate their teaching effectiveness objectively. Meanwhile, students' perceptions confirmed a more engaging classroom atmosphere, greater participation, and improved quality of feedback.

Overall, these findings affirm that the implemented instructional model effectively enhanced teachers' pedagogical skills. The significant improvements across multiple indicators reflect a pedagogical transformation toward more student-centered, reflective, and technology-integrated practices. It can therefore be concluded that the intervention contributed to strengthening teachers' professional competence in lesson planning, instructional delivery, and learning evaluation.

Implementation of Digital Reflective Teaching on Critical Literacy Skills

The improvement in students' critical literacy skills was obtained based on the field implementation of the digital reflective teaching model using a trial design in Table 1. The pretest data results from meeting 1 were used as the basis for determining the similarity of the initial conditions between the two classes. This test was conducted to ensure that the improvement obtained was not influenced by differences in initial abilities between the control class and the experimental class. The test results showed that the pretest data for students' critical literacy skills obtained a significance value of 0.311. The value obtained showed a sig value ≥ 0.05 , so H_0 was rejected or it was concluded that there was no significant difference in the pretest scores for critical literacy skills between the control and experimental classes. The data for testing the similarity of the initial conditions is shown in Table 4.

Table 4. Initial Condition Similarity Test Results.

Critical Literacy Skills	t	df	Sig. (2 tailed)	Conclusion
Pretest	1.022	62	0.311	$0.311 \geq 0,05$ (There is no significant difference)

Furthermore, based on the results of the test in meeting 2, pretest-posttest data on critical literacy was obtained from the control and experimental classes. The descriptive data results of the critical literacy skills of students at SMP N 13 Magelang are presented in Table 5.

Table 5. Descriptive Data of Pre- and Post-Tests of Critical Literacy Skills.

Class		Maximum Value	Minimum Value	Average	Standart Deviation
Experiment	Pretest	78	33	51.41	10.472
	Posttest	100	61	80.53	9.346
Control	Pretest	72	33	48.91	9.539
	Posttest	94	50	68.66	11.614

Based on the descriptive data on critical literacy skills in Table 5, there was a difference in the average scores between the control class and the experimental class at SMP N 13 Magelang. The pretest-posttest data was also analyzed for normality and homogeneity as a basic prerequisite in the ANCOVA test to determine the magnitude of improvement and its effectiveness on critical literacy skills. The results of the data normality test showed pretest data (0.266) and posttest data (0.358) in the experimental class and pretest data (0.125) and posttest data (0.152) in the control class. These results imply that the data are normally distributed because the pretest-posttest significance value is > 0.05 , so H_0 is accepted.

In addition, the results of the pretest-posttest data homogeneity test for the experimental and control classes showed that the data was homogeneously distributed. This is based on the pretest homogeneity test result of 0.893 and the posttest result of 0.125. These results indicate that the data variance between the experimental and control groups comes from the same population or is homogeneous, so that the ANCOVA analysis technique can be used to prove the effectiveness of the improvement produced.

Table 6. Results of the Effect Test Between Subjects with Ancova.

Source	Sig	Partial Eta Squared
Corrected Model	0.000	0.370
Group	0.000	0.282

Based on the data in Table 6, it shows a sig value of $0.000 < 0.05$, which implies that there is a significant difference between the control class and the experimental class that used the reflective teaching model. The partial eta value in Table 5 also implies the effect of the model's application on improving students' critical literacy skills in the large category (Cohen, 1988). Thus, these findings support the argument that developing teacher professionalism through the Digital Reflective Teaching approach not only improves teachers' pedagogical competence but also has a tangible impact on the quality of learning, particularly in improving students' critical literacy.

In this study, the effectiveness of implementing the digital reflective teaching model can also be seen based on the N-Gain test results. These results can be used to compare the amount of improvement obtained between the control class and the experimental class. The N-Gain test results are presented in Table 7.

Table 7. Critical Literacy N-Gain Test Results.

Class	Average		N-Gain	Description
	Pretest	Posttest		
Experiment	51,39	80,56	0,60	Medium
Control	48,96	68,58	0,38	Medium

Based on the data in Table 7, overall, both classes experienced an increase in critical literacy skills in the moderate category. However, the increase in the experimental class (0.60) was greater than that in the control class (0.38). This finding implies that the application of the digital reflective teaching model plays a more significant role in improving students' critical literacy skills. The improvement in students' critical literacy skills can also be seen based on each indicator. These findings are shown in Figure 2.

Based on Figure 2, overall, the increase in critical literacy skills for each indicator in the experimental class was greater than that in the control class. The highest increase in critical literacy skills was found in the indicator focusing on social-political issues. The

second highest increase was found in the indicator disrupting the commonplace, and the third highest was found in the indicator interrogating multiple viewpoints. Meanwhile, the lowest increase was found in the indicator taking action and promoting social justice.

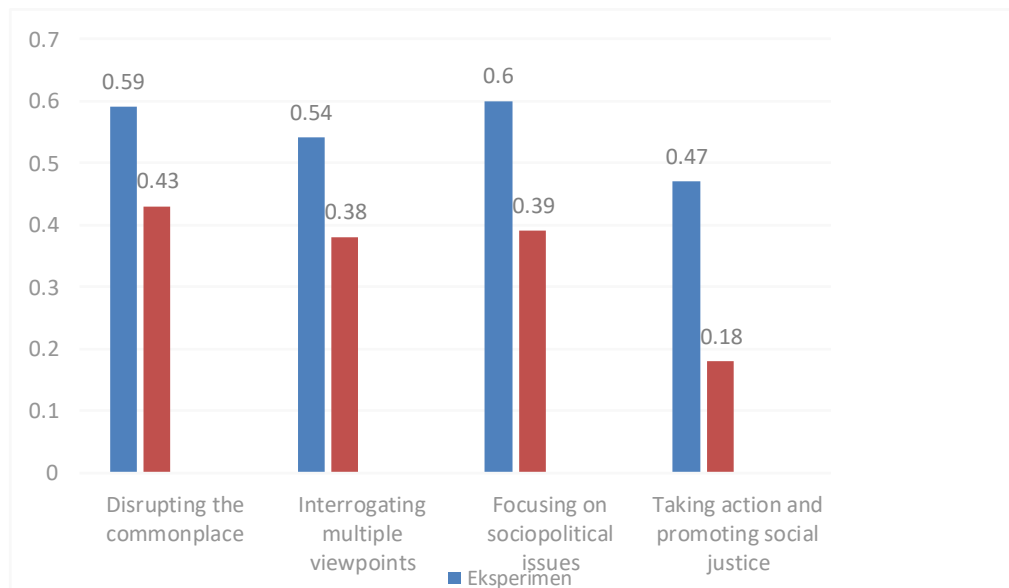


Figure 2. Comparison of Critical Literacy N-Gain Improvement for Each Indicator

Discussion

Teacher Professionalism Development Model

The findings of the FGD produced a model for developing teacher professionalism based on digital reflective teaching, showing that reflection can no longer be understood merely as a sporadic personal activity, but needs to be developed as a structured, documented, and sustainable system. This is because reflective activities play an important role in accurately mapping problems and improving the overall learning process (Kusumayasa, 2022). In addition, documented reflection activities provide schools with clear data to monitor the continuous improvement of teacher competence (Aldahmash et al., 2017). This is in line with the research by Darling-hammond et al. (2017), which confirms that effective teacher professional development is characterized by a continuous cycle of reflection, feedback, and follow-up in classroom practice. By utilizing digital media, reflections can be documented systematically, enabling teachers to track their competency development over time and use it as a basis for decision-making.

The results of the FGD also imply the importance of emphasizing pedagogical competence, performance assessment, and evidence-based reflection. (Lefebvre et al., 2023) states that systematic reflection helps teachers connect theory with practice and triggers significant instructional changes. In the context of English language teaching, this integration becomes even more important because teachers not only play a role in teaching linguistic skills, but also in developing students' critical literacy. Thus, targeted pedagogical reflection can serve a dual purpose, namely improving teacher performance while enriching students' critical thinking skills. In this study, the dimensions of critical literacy included in the reflection aspect cover (1) Disrupting the Commonplace; (2) Interrogating Multiple Viewpoints; (3) Focusing on Sociopolitical

Issues; and (4) Taking Action and Promoting Social Justice, referring to the study by (Lewison et al., 2002). Meanwhile, the integrated pedagogical competencies include the following indicators: (1) A safe and comfortable learning environment for students; (2) Effective student-centered learning; (3) Student-centered assessment, feedback, and reporting, referring to the Ministry of Education's regulations related to the teacher competency model (Kemendikbudristek, 2023).

A contextual and applicable self-development plan is also an important aspect to emphasize based on the results of the FGD. This is because teacher professional development must be personalized, based on classroom needs, and relevant to the challenges faced (Chen & Chen, 2022). Through a cyclical and continuous digital reflective teaching model, teachers can be more effective in ensuring the improvement of their competencies, including through the process of collaboration with peers in each cycle of professional development (Hamdani et al., 2025; Juandi, 2019). Thus, it is hoped that the learning process carried out will be more meaningful.

Based on the overall findings of the FGD, it was agreed that the resulting teacher professional development management model should be cyclical, measurable, and digitally reflective, with the main objective of improving teachers' pedagogical competencies while encouraging the strengthening of students' critical literacy. This model was then visualized in the form of a flowchart containing stages of competency profiles, reflection, performance assessment, self-development plans, learning implementation, digital reflection, and comprehensive evaluation that is repeated continuously.

Improving Teachers' Pedagogical Skills

The findings of this study revealed consistent and substantial improvements across all aspects of teachers' pedagogical competence after the instructional intervention. The increases were observed not only in external classroom observations but also in teachers' self-assessments and student perceptions. These results are consistent with prior research indicating that comprehensive pedagogical interventions integrating reflective practices, feedback cycles, and technology-based teaching lead to significant advancements in teaching quality and learner outcomes (Basilotta et al., 2022). The most remarkable improvement occurred in the aspects of promoting students' critical thinking and facilitating active classroom discussions, which increased by 1.4 and 1.3 points, respectively. This suggests that teachers have successfully transitioned toward more student-centered and participatory pedagogies. In such classrooms, the teacher acts as a facilitator who encourages inquiry and dialogue, allowing students to take ownership of their learning. This finding aligns with prior evidence emphasizing that student-centered approaches foster autonomy, motivation, and higher-order thinking among learners (Kerimbayev et al., 2023).

In addition, significant gains were recorded in classroom management and feedback provision, indicating that teachers not only improved their instructional design but also created more positive and productive learning environments. Effective classroom management allows for greater instructional flexibility, creativity, and dialogue, which in turn enhances student engagement. Studies have shown that well-managed classrooms foster emotional security and collaborative learning, both of which are essential for active participation and critical inquiry. The improvement in teachers' self-assessment results highlights their increased ability to reflect critically on their

instructional practices. Reflective teaching is widely acknowledged as a cornerstone of teacher professional growth, as it helps educators identify areas for improvement and adapt their pedagogical approaches to students' needs. This finding echoes previous studies emphasizing that reflective practice bridges the gap between professional development and actual transformation in classroom teaching (Machost & Stains, 2023).

Although the increase in ICT integration was slightly lower than other dimensions, it still showed meaningful growth (from 2.6 to 3.7). Teachers' enhanced use of ICT correlated with improved student engagement, as technology-enabled lessons provided interactive and multimodal learning opportunities. Consistent with recent studies, ICT use in teaching is not merely a technical skill but a pedagogical competence that enriches student-centered learning, supports collaboration, and facilitates the development of 21st-century skills (Kerimbayev et al., 2023). Overall, the findings confirm that the instructional model applied—combining structured lesson planning, effective classroom management, reflective practice, ICT integration, and active student involvement—successfully enhanced teachers' pedagogical competence from multiple perspectives. These results suggest that professional development programs should adopt multi-dimensional frameworks that address teachers' reflective capacity, classroom strategies, and assessment literacy rather than focusing on isolated skills. Future research could further explore the long-term sustainability of these improvements and their direct impact on student achievement.

Improving Critical Literacy Skills

The application of the digital reflective teaching model has been proven effective in improving students' critical literacy skills based on the results of the ANCOVA test with a sig value of 0.000. A significant increase can also be seen based on the results of the N-gain test of 0.60 and N-Gain on each critical literacy indicator. Based on the researcher's analysis, this is influenced by the characteristics of digital reflective teaching, which allows for continuous reflection for teachers and students in an integrated learning process with digital aspects. This is demonstrated by the highest increase in the indicator of focusing on social political issues. The technological aspect in reflective activities allows for documented reflection, thereby facilitating the development of teaching practices that are more responsive to student needs and contextual issues (Lantz-Andersson et al., 2022; Li & Walsh, 2023). This cyclical process makes learning more relevant, contextual, and able to stimulate students' critical thinking skills, especially in analyzing socio-political issues that are close to the reality of students' lives (Chan & Lee, 2021).

Improvements in indicators that disrupt the commonplace measure students' ability to challenge common assumptions, dominant mindsets, or biases that often appear in texts and discourse. Through digital reflective teaching, students and teachers are able to review students' responses that are recorded digitally, evaluate the effectiveness of learning strategies and learning resources used. The summary of the reflection results provides authentic material for teachers to evaluate the effectiveness of the learning strategies and materials used, so that teaching strategies can be adjusted to challenge common assumptions and encourage critical thinking (Chan & Lee, 2021). In addition, Nam (2020), research shows that students' critical literacy through documented text analysis enables them to identify biases and dominant perspectives in the reading material. These findings are in line with the argument that digital documentation of

student responses provides a space for deeper reflection, both for teachers to assess teaching strategies and for students to revise their understanding.

Improvements in the indicator of interrogating multiple viewpoints show that students are able to consider various perspectives in understanding texts and social issues presented. This is influenced by the existence of a space for reflection that encourages teachers to review their teaching practices and student responses in greater depth. This reflection process allows teachers to realize the extent to which the learning provided has opened opportunities for students to explore various perspectives, as well as adjust strategies so that students are encouraged to see issues from more diverse angles (Chan & Lee, 2021). In addition, research by McNicol et al., (2014); Tajeddin & Asadnia (2023), confirms that digital technology provides space for students to express their views more broadly and in a documented manner, so that the reflection process is not only limited to teachers but also to the students themselves by comparing the reflections of their peers.

The indicator of taking action and promoting social justice is the indicator with the lowest increase compared to other indicators. This is because these indicators require students not only to understand, analyze, and compare perspectives, but also to take concrete steps to promote social change and justice. There are limitations in implementation, which focuses more on text analysis and critical discussion, while opportunities to translate reflections into concrete action are relatively limited. This is in line with Vasquez (2016) research, which confirms that the dimension of taking action is the most difficult stage to achieve in critical literacy because it involves external factors, such as social context, community support, and school rules. However, when compared to the N-Gain data, the increase in the taking action and promoting social justice indicator in the experimental class was better than in the control class.

CONCLUSION

This study successfully formulated and empirically tested a Digital Reflective Teaching-based model for managing English teacher professional development. The findings demonstrate that effective teacher professional development requires a systematic, documented, and continuous reflective mechanism rather than isolated or short-term training activities. The proposed model operates through a cyclical process encompassing competency reflection, performance assessment, self-development planning, classroom learning implementation, digital reflection involving teachers, students, and peers, and comprehensive evaluation.

The implementation of the model in English language learning contexts shows positive practical implications for both teacher professional development quality and student learning outcomes. By embedding structured digital reflection and multi-source feedback into professional development management, the model supports more contextual, sustainable, and evidence-based pedagogical improvement, while simultaneously contributing to the strengthening of students' critical literacy in English learning. From a policy perspective, this study suggests that teacher professional development programs should move beyond procedural training models and adopt digitally supported reflective frameworks to ensure sustainability, relevance, and measurable impact on classroom practice and student competencies.

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