

# Similarity

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**Submission date:** 28-Mar-2026 10:03PM (UTC+0700)

**Submission ID:** 2389739343

**File name:** 4\_Wahyuni\_et\_al\_35-47.docx (1.26M)

**Word count:** 6582

**Character count:** 40918

## INTEGRATION OF DEEP LEARNING APPROACHES AND PJBL MODELS: ANALYSIS OF STUDENTS' WRITING SKILLS CYCLE TOWARDS NEWS PUBLICATION

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|-------------------------|------------------------------|---------------------------|----------------------------|--------------------------|
| <b>Article History:</b> | Received 20 February 6, 2026 | Revision February 8, 2026 | Accepted February 21, 2026 | Published March 28, 2026 |
|-------------------------|------------------------------|---------------------------|----------------------------|--------------------------|

### Abstract

This study aims to analyze the effectiveness of the integration of the Deep Learning approach and the Project-Based Learning (PjBL) model in improving the news writing ability of high school grade XI students towards digital publications. The main problem of the study is the low critical reasoning and factual verification skills of students in conventional news text learning. The method used is Classroom Action Research (CAR) model Kemmis and McTaggart in two cycles. Data were collected through intensive observation, documentation, performance tasks, and interviews, which were analyzed using the interactive models of Miles, Huberman, and Saldaña. The results showed a significant improvement in students' writing skills, with classical completeness increasing from 20% in the pre-cycle to 53.33% in Cycle I and reaching a peak of 90% at the end of Cycle II. Qualitatively, the integration of the Deep Learning dimension through personal coaching successfully overcame students' literacy and technical barriers. This research provides an implication that the synergy of the Deep Learning approach and the PjBL model is transformatively able to transform grade XI high school students into critical and collaborative information producers. The final results were validated by the success of the publication of student news works that met professional journalism standards (factual and fitable) on the school's digital platform. Based on these findings, the model is recommended as a strategic framework to answer the challenges of digital literacy at the high school level.

### Keywords

Deep Learning, Project Based Learning, Writing Skills, New Text, Digital Publication

## INTRODUCTION

Writing skills are a core competence in the Indonesian Language curriculum, where the study of news texts serves as an ideal medium for developing writing skills and critical thinking (Irsyad & Anggraini 2023); (Angela et al., 2024); (Manshur & Munawaroh, 2023). At Senior Secondary School (SMA) level, this is strongly reflected in the demand for writing skills in factual, data-driven news texts (Suriani, 2021). However, social reality shows that students are often trapped as passive consumers of information who are vulnerable to disinformation, as they are never involved in the process of factual verification, which is the heart of authentic journalism (Junining, 2025). Conventional learning processes fail to encourage this essential practice because they focus solely on the theory of text structure, such as the inverted pyramid, without addressing the stages of primary data collection and on-the-ground truth-checking (Indriana 2024; Kurniawan 2025). This gap is empirically confirmed through pre-research observations at Gambiran State High School No. 1, which showed that students' proficiency in writing news texts reached only 20%, far below the 75% minimum competency standard (KKM). This low figure reflects that 80% of students still struggle to distinguish between facts and opinions and tend to reconstruct secondary information without a verification process. Consequently, their writing fails to meet the required standards and falls short of the demands of the writing skills cycle leading to publication. Consequently, their writing fails to meet the required standards and falls short of the demands of the writing skills cycle leading to publication (Hasanah, 2022; Wang & Hasan, 2025).

To address these challenges, the integration of innovative methodologies is essential. Consequently, the synergy between Deep Learning approaches—which aim to foster deep understanding and critical thinking—and the Project-Based Learning (PjBL) model is vital (Rahmita, 2025; Nadawina, 2025). This integration provides a project mechanism that requires students to act as real journalists, whereby students are asked to go out into the field to produce authentic, publication-ready news writing projects (Herdiana, 2024; Murdiantoro, 2024; Archana & Jeevaraj, 2024). This decision is relevant given that Deep Learning has now been established as a new philosophical approach in upper secondary schools for the 2025/2026 academic year (Nadawina, 2025).

The Ministry of Education and Culture notes that 59,000 schools in Indonesia are ready to implement Deep Learning. This figure represents approximately 15–20% of the total national educational institutions that will pioneer the transformation of deep learning in 2025 (Darmayanti, 2025; Kurniawan, 2025). This approach aligns with the statement by Rob Randall, Executive Director of New Pedagogies for Deep Learning (NPDL) and an Australian education expert actively involved in curriculum collaboration in Indonesia, who noted that, as part of the development of the Deep Learning and Artificial Intelligence (AI) modules, Deep Learning focuses on deeper and more meaningful understanding through project-based learning collaboration (Mayasari, 2025). Randall also emphasised the urgency of utilising technology and Artificial Intelligence to significantly enhance students' critical thinking skills (Zaini et al., 2025).

Project-Based Learning (PjBL) has been identified as an effective instructional model because it is learner-centred, enabling learners to acquire knowledge and skills through in-depth investigation of real-world projects (Habibi, 2022; Irsyad & Anggraini, 2023; Saputri et al., 2024). This model, which consistently demonstrates positive outcomes in improving news writing skills by emphasising engagement throughout the entire project cycle, ensures learning is tested within a genuine professional context (Aini, 2025; Ismaniasih & Lindra, 2025). PjBL is one concrete model used to implement the philosophy of Deep Learning in accordance with the pedagogical principles of the Merdeka Curriculum (Al Hamidi, 2025; Sari & Arta, 2025); (Hassija, 2024).

The theory of Deep Learning refers to practices that foster comprehensive and meaningful conceptual understanding through a learning process that is mindful, meaningful, and joyful (Diputera et al., 2024; Santiani, 2025). This model requires learners to undergo a comprehensive pedagogical cycle, in which meaningful learning is realised when students apply journalistic theory through pedagogical practices and apply it in real-world projects (Azizah, 2025; Satar, 2025; Zheng & Liu 2025). Furthermore, mindful learning is achieved through a reflective learning environment and mindful learning partnerships, which encourage in-depth evaluation of the process and outcomes of projects (Prawiyogi & Rosalina, 2025). Meanwhile, joyful learning is enabled through the use of digital technology to create engaging and enthusiastic learning experiences (Affandi, 2024; Asma & Sahur 2025).

A number of previous studies have explored the effectiveness of the Project-Based Learning (PjBL) model in Indonesian language teaching. For example, a study by Al Hamidi (2025) showed that PjBL is effective in improving students' writing skills, critical thinking, and collaborative abilities. A systematic review by Wijayanti (2024) further supports this, finding that PjBL is capable of improving students' critical skills, average marks, and completion rates. Further PjBL research was conducted by Pane, Indriyanto, and Parangin-angin (2024), which also focused on improving learning outcome scores. Additionally, research by Fikri (2024), which tested the Experiential Learning model, provided a relevant contribution showing that this model is effective in building a bridge between theory and practical experience, which is an important prerequisite in project-based learning.

However, based on a review of the four studies above, the research titled "Integration of the Deep Learning Approach and the PjBL Model: Analysis of the Cycle of Students' Writing Skills Towards News Publication" possesses a distinctive novelty, as it lies in the integration of the philosophy of Deep Learning with PjBL as a comprehensive guide for implementing learning among Year 11 high school students. Unlike previous studies, which focused more on improving writing skills or general learning outcomes, and thus failed to adequately represent the demands of real-world projects such as professional digital publications in journalistic products (Larasati et al., 2025). This novel study generally aims to determine the effectiveness of integrating the Deep Learning approach and the Project-Based Learning (PjBL) model in enhancing the writing skills of Year 11 high school students towards news publication, thereby achieving professional journalistic standards.

To achieve this objective, this study seeks to answer three main questions: (1) How is the integration of Deep Learning and PjBL implemented within the 'Theory to Publication' Writing Skills Cycle in Year 11 senior high school classes? (2) How effective is this integrated model in improving Year 11 senior high school students' writing skills to meet standards and achieve successful publication on digital platforms? (3) What is the impact of this integrated model on the critical and collaborative thinking skills of Year 11 high school students? The research findings are expected to provide practical recommendations for educators on utilising this synergy as a transformative framework for producing journalistic-quality written works and evaluating its effectiveness within the framework of future Deep Learning policy approaches.

## RESEARCH METHODS

This study adopts a Classroom Action Research (CAR) design, chosen for its relevance to testing the effectiveness of learning practice interventions directly. The CAR model applied is the collaborative cycle proposed by Kemmis and McTaggart (2024), as adapted in Hera and Indra (2025). The implementation is carried out in a spiral and continuous manner, covering at least two cycles or more until the success criteria are met. The main research objective is to test the effectiveness of integrating the Deep Learning approach and the Project-Based Learning (PjBL) model in improving students' news writing skills towards news publication, as well as its impact on critical and collaborative thinking skills. Each cycle of Classroom Action Research (CAR) consists of four main, interrelated and recurring stages, namely: Planning, involving the design of PjBL modules; Acting, covering the implementation of the model; Observing, for monitoring the process; and Reflecting, containing analysis for revising the plan in the next cycle. The following is the Collaborative Classroom Action Research Cycle model according to Kemmis & McTaggart:

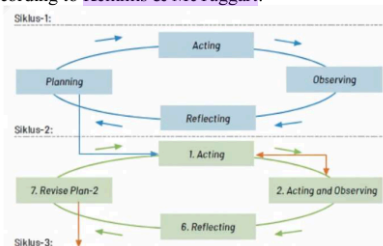


Figure 1. Example of the Collaborative Cycle of Classroom Action Research

Figure 1 illustrates the Collaborative Cycle of Classroom Action Research (Kemmis & McTaggart), which clarifies the sequence of stages in Classroom Action Research from Cycle I to Cycle II. The research subjects were all Year 11 students at the senior secondary school, selected using total sampling with a holistic case study design. The holistic case study employed within the classroom action research framework aims to analyse the classroom unit as a unified learning ecosystem. The relationship between the two is complementary: classroom action research functions as a methodology for improving practice through a participatory-collaborative cycle; whilst the holistic case study serves to capture the dynamics of behavioural change, cognitive barriers, and the complexity of student interactions in depth within a specific context. All students were involved to obtain comprehensive data regarding the implementation of interventions within the classroom environment. The implementation of the Deep Learning Integration approach and the Project-Based Learning (PjBL) model was carried out collaboratively by the Indonesian Language teacher and the researcher. During the interventions, intensive observations were conducted to record student activities and assess the effectiveness of the methods employed. The researcher and collaborating teachers subsequently participated actively in the reflection phase to analyse the findings and ensure the objectivity and validity of the data collected. Data collection was carried out comprehensively through triangulation to ensure the validity of the findings. The research data included primary data obtained from writing tasks, observations, and interviews, as well as secondary data in the form of teaching materials and field notes.

Data collection techniques included: intensive observation using structured observation sheets to monitor student engagement; performance tasks involving the writing of news articles ready for publication, assessed using a standard journalistic rubric; documentation of student work and teaching materials; and in-depth interviews with students and collaborating teachers to explore their experiences and the challenges encountered during the learning process. In assessing students' news articles, the researcher used a professional journalistic standard rubric as the primary assessment tool. This rubric covers five essential indicators: (1) Data Accuracy (5W+1H), which emphasises the results of verifying primary sources in the field; (2) Inverted Pyramid Structure to assess the sharpness of the lead (news headline); (3) Critical Thinking to measure students' ability to distinguish journalistic facts from subjective opinions; (4) Publication Suitability regarding the use of journalistic language that is straightforward, concise and communicative; and (5) Journalistic Ethics ensuring the originality of the work and the integrity of the information.

Data analysis was conducted holistically at the end of each cycle using a descriptive qualitative approach integrated with simple descriptive statistics, where quantitative outcomes were obtained through class averages and classical completion rates. Qualitative data was processed using the interactive analysis model by Miles, Huberman, and Saldaña (2020), which comprises three main activity streams: first, Data Reduction through the sorting of relevant data and the coding of findings to identify significant patterns in news writing skills; second, Data Display in the form of structured narratives or qualitative matrices to systematically describe the development of students' critical reasoning and collaboration; and third, Drawing Conclusions or Verification through the interpretation of meaning and reflective discussion with the collaborating teacher. To reinforce objectivity, quantitative data was analysed by calculating class average scores and the percentage of students achieving the standard. This study is deemed successful if it meets the criteria for the success of the intervention, namely the qualitative description of improvements in critical and collaborative reasoning, as well as the achievement of quantitative indicators in the form of at least 80% of students meeting the established criteria for writing proficiency. The figure of 80% was selected as the success indicator to represent high performance that exceeds the school's minimum competency standard (75%). This target is considered crucial to demonstrate that the integrated model can deliver a significant collective impact for the majority of students, whilst also serving as a quality assurance that the news products produced have indeed met the standards for mass digital publication.

## RESULTS AND DISCUSSION

### Results

This presentation of the research findings provides a comprehensive description and in-depth analysis of the implementation of the integration of the Deep Learning approach and the Project-Based Learning (PjBL) model in improving students' news writing skills. This classroom action research was conducted through two consecutive cycles and designed as a self-correcting framework. The researcher



and collaborators decided to terminate the intervention at the end of Cycle II, given that all success criteria established during the planning stage had been fully and significantly met. These achievement indicators were demonstrated by the class collectively exceeding the Minimum Passing Criteria (KKM) threshold, and were supported by qualitative findings showing a tangible improvement in students' awareness and critical reasoning through the journalistic publications produced. The following explanation systematically outlines the transformation of the learning process, from the identification of cognitive gaps in Cycle I to the achievement of standardised quality of work in Cycle II.

#### Analysis of Cycle I as an Initial Implementation and Identification of Gaps

##### Planning and Preparation for Cycle I

The planning stage in Cycle I begins with the collaborative development of teaching materials with class teachers (collaborators) to produce a comprehensive In-Depth Learning Plan (RPM). This RIP is developed based on the current Indonesian Language subject syllabus, integrating the Graduation Profile Dimensions as the framework for student competency outcomes. The learning design is systematically structured to include the formulation of learning objectives, pedagogical practices, learning partnerships, and the creation of a conducive learning environment.

Building on this design, learning activities are mapped across six progressively structured sessions, ranging from exploring the conceptual understanding of news texts to the process of producing a complete journalistic piece. Each session is integrated with learning assessments that include process-based evaluation at every stage of the activity, as well as a summative assessment at the end of the sixth session to monitor students' ongoing competence development. This entire series of six sessions and assessment instruments is guided by the Deep Learning model as the primary pedagogical framework, ensuring that each learning session stimulates students' deep understanding in producing high-quality news pieces (Zhang & Li, 2025).

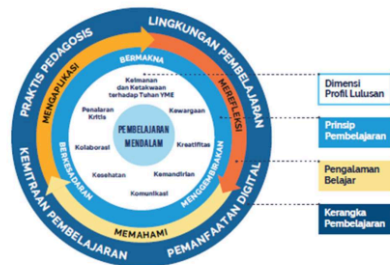


Figure 2. Example of a Deep Learning Model Diagram

Based on the work of Abdul Mu'ti (2025), Figure 2 illustrates the Deep Learning Model as a comprehensive pedagogical framework for intervention. This model is visually arranged in concentric layers to depict the core strategies applied during the planning stage of Cycle I. At the outermost layer lies the learning framework comprising four guiding elements: pedagogical practices, learning partnerships, the learning environment, and digital utilisation. These elements surround the students' learning experiences, which are designed through a cycle of understanding, applying and reflecting. The entire process is carried out based on the principles of conscious, meaningful and joyful learning. The ultimate goal is to produce high-quality graduates, measured through the Graduate Profile Dimensions which encompass spiritual aspects (Faith and Piety towards God Almighty), character (health and independence), as well as cognitive and social competencies such as critical reasoning, creativity, communication, collaboration, and citizenship.

##### Implementation of Cycle I Learning Materials

Cycle I comprises several stages, beginning with an action phase conducted over two sessions, each lasting 2 x 45 minutes. The primary focus of Cycle I is to build a foundation of understanding regarding the basic elements of news, with an emphasis on the Deep Learning dimension (Deep or Conscious Understanding), before students fully transition to more complex PjBL tasks. In detail, the

first session focuses on theoretical aspects and identification, namely explaining the meaning of the elements of news (5W+1H), structure (Lead, Body, Conclusion), and the linguistic conventions of news texts, using PPT (PowerPoint) as an efficient visual aid.

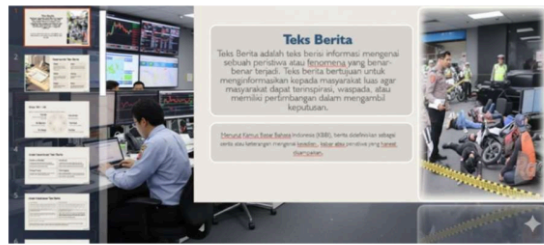


Figure 3. Example of a PowerPoint presentation as a teaching aid

This material serves to efficiently and visually establish the theoretical foundation of news texts before students move on to the practical task of designing news headlines with critical awareness (Deep Learning). Screenshots of the main slides and thumbnails from the PowerPoint (PPT) presentation are used by the teacher as instructional materials during the first session of Cycle I. Following the presentation of the theory, students are trained to design headlines that are factual, up-to-date and critical.

### Observation Cycle I

The observation phase <sup>5</sup> was carried out simultaneously with the implementation of the intervention, during which the researcher and collaborators conducted intensive observations using observation sheets to record student activities, the effectiveness of the methods, and classroom interactions. The observation results revealed mixed findings: on the one hand, the majority of students demonstrated good engagement in identifying the basic elements of news (5W+1H) during the first session. However, on the other hand, a major challenge was identified, namely that students still struggled to apply the principle of 'mindfulness' when structuring factual information. Furthermore, students' speed in summarising news content appeared low, and their ability to respond critically to news texts was also assessed as still limited.

Quantitatively, these observation results are reflected in an increase in the completion rate, reaching 53.33% from the initial condition (Pre-Cycle) of 20%. Although there was an increase, this achievement remains below the KKM target (75%) with a status of 'Not Yet Complete', confirming the existence of a cognitive gap in the initial implementation. Failures in the dimensions of critical awareness and reasoning at this stage are clearly illustrated by empirical evidence from the raw news draft covering the achievements of Graha Wafi Taraka, a student at SMAN 1 Gambiran who won a silver medal at the South-East Asia Hapkido Union (SEAHU) championship. The following is an excerpt from the draft demonstrating the redundancy:

"Keikutsertaan Graha Wafi Taraka di kejuaraan ini didasari tekad kuat bukan hanya sekadar mencari pengalaman, tetapi juga untuk meraih prestasi dan membanggakan kedua orang tuanya. Ketika ditanya mengenai alasan mengikuti kompetisi, ia menjelaskan bahwa keikutsertaannya bukan hanya sekadar mencari pengalaman, tetapi juga untuk meraih prestasi dan membanggakan kedua orang tuanya."

An analysis of the draft above reveals that the students do not yet have a full understanding of information efficiency (Lean Thinking). There is a verbatim repetition of identical narrative between the descriptive paragraphs and the direct quotes from the source. This demonstrates that the writer is still acting as an 'information transcriber' without engaging in deep meaning processing (Deep Learning), meaning the draft is deemed to fail to meet the standards of professional journalistic publication.

### Reflection on Cycle I

The data obtained from the writing tests and observation notes were analysed holistically during the reflection phase to determine the effectiveness of the initial intervention. The analysis showed that, although there had been a significant improvement in the basic understanding of news structure (5W+1H), the class-level achievement rate had not yet reached the established Minimum Passing Criteria (KKM). Based on reflective discussions between the researcher and collaborators, three main critical gaps were identified as barriers to optimising student achievement, namely:

1. A lack of intensive personalised guidance (scaffolding) for students in the process of transforming factual information into a systematic news draft.
2. Learning activities have not been optimised to stimulate depth of critical reasoning, resulting in students' responses to texts remaining superficial.
3. Barriers to literacy comprehension, where students still require a significant amount of time to summarise the key points from complex information sources.

The findings from this reflection stage formally form the basis for the researcher to design improvement measures for Cycle II. The focus of improvement will be directed towards strengthening individual coaching and the application of quality management (Lean Method) to address the identified competency gaps.

### Analisis Siklus II Sebagai Peningkatan dan Pencapaian Kriteria Keberhasilan

#### Planning and Preparation for Cycle II

The planning stage of Cycle II is based on an in-depth reflective analysis of the weaknesses identified in Cycle I. The RPM is revised collaboratively, with a focus on integrating more detailed news writing scaffolding. The information literacy component is designed with an emphasis on the use of the latest news updates as mandatory source material. To address the low levels of critical thinking and information processing, teaching methods were refined by designing structured discussion activities, such as source analysis. Critical reading techniques, such as scanning and skimming, were integrated to analyse writing models, as a foundation for achieving the critical reasoning dimension in the Deep Learning model (Ruing, 2025)

#### Implementation of Learning Materials (Action) Cycle II



Figure 4. Quality Improvement Cycle (PjBL Analogy)

The implementation of Cycle II focuses on the execution of refined interventions by adopting the principles of Lean Thinking pioneered by Womack, J. P., & Jones, D. T. (1996), which were subsequently further developed in the context of educational innovation by Aleksander Musabelli (2025). In line with the quality improvement cycle and the focus on standardisation outlined, the process begins with the 'Identify Value' and 'Map the Value Stream' stages. During this phase, students are required to analyse current news models from reputable media websites to identify the actual value of journalism and are given the freedom to choose topics of interest to map the information value stream. This activity aims to ensure students are aware of current information and understand the standards of professional journalism before embarking on independent projects.



Subsequently, to achieve 'Create Flow' and 'Establish Pull', intensive personal coaching sessions are conducted during the news story planning phase to ensure every student masters the principles of awareness before working in teams. The culmination of this process is the full-scale project (Project-Based Learning), in which students are tasked with conducting field reporting to gather data and information directly from sources. Students then apply the individual skills honed through coaching to group tasks to complete the news writing project in its entirety. The entire process is directed towards the 'Seek Perfection' stage, where the best completed projects are deemed worthy of publication on the school website as a form of publication and validation of their journalistic work, which has met the quality standards in line with the Moisiu model (2025). A visual representation of the completed projects is presented in the following image:

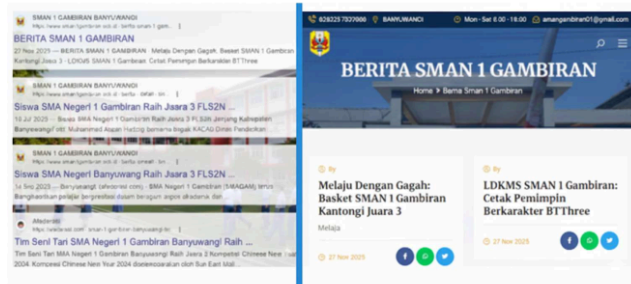


Figure 5. Example of A Visual Representation of A Student News Publication (PjBL) on the School Website

Figure 5 shows visual documentation of the final PjBL product from Cycle II. The visualisation is divided into a view of the school's main news portal (left-hand side) and details of the published article (right-hand side). This evidence demonstrates that the students' work has undergone the 'Seek Perfection' process and successfully met the standards of professional journalism, namely being factual and newsworthy. The success of this publication directly confirms the achievement of the dimensions of Awareness and Critical Reasoning among students in the context of news writing (McClune & Jarman, 2010).

#### Observation (Observing) Cycle II

Observations were carried out intensively and simultaneously to measure the direct impact of the refined intervention. The development of news writing skills focused not only on classroom discussions, but also on the students' working processes during field reporting (data collection) and their interactions with sources. The observation results noted a significant improvement in student behaviour, particularly in their speed and accuracy in searching for and processing the data collected. The effectiveness of personalised guidance was confirmed to have successfully enhanced students' ability to apply the principles of conscious reporting directly. This is evident from the quality of the news drafts and final scripts, which are credible and meet basic journalistic standards, and which were subsequently successfully completed and submitted as final PjBL products ready for publication. Qualitatively, structured discussion activities yielded more analytical and in-depth responses from students, indicating the achievement of the critical reasoning dimension of Deep Learning.

#### Reflection (Reflecting) Cycle II

This reflection stage marks the conclusion of the research. The final quantitative analysis of the writing test results indicates a significant increase in the classical minimum passing mark. It is evident that pupils have successfully met or exceeded the set targets. This improvement has been positively influenced by the synergy between individual guidance, which enhances each pupil's core competencies, and group project tasks, which encourage the application of collective skills. The increase in classical achievement from the Pre-Cycle to Cycle II is presented in detail in the table.

**Table 1. Comparison of Writing Skill Success Rates (Classical Achievement)**

| No | Research Stage                           | Student Achievement Rate (100%) | Minimum Passing Mark (75%) | Achievement Status                              |
|----|------------------------------------------|---------------------------------|----------------------------|-------------------------------------------------|
| 1. | Pre-Cycle (Initial Conditions)           | 20%                             | 75%                        | Not Yet Completed (Initial Indications of Gaps) |
| 2. | Cycle I (Initial Implementation)         | 53.33%                          | 75%                        | Not Yet Completed (Requires Corrective Action)  |
| 3. | Cycle II (Final Implementation/Delivery) | 90.00%                          | 75%                        | Achieved (Integrated Model Proven Effective)    |

Quantitative analysis revealed a highly significant improvement in students' news writing skills at each stage of the intervention at Gambiran State Senior High School No. 1. In the pre-cycle phase, the percentage of students achieving the standard was only 20%, confirming a significant initial gap compared to the minimum passing mark of 75%. Following the initial implementation in Cycle I, the achievement rate rose to 53.33%, yet this outcome was still deemed incomplete as it had not met the minimum threshold for success. The intervention was then optimised in Cycle II through the refinement of actions, resulting in a surge in the achievement rate to 90.00%. Cumulatively, there was a 70% increase from the initial condition to Cycle II, with the sharpest rise of 36.67% occurring between Cycle I and Cycle II.

### Discussion

The successful implementation of a deep learning approach integrated with the PjBL model in the teaching of news texts to Year 11 secondary school students is a tangible manifestation of the synergy between pedagogical depth and Lean Thinking quality management. The significant improvements observed in this study demonstrate that a structured approach is capable of systematically eliminating students' cognitive barriers through the mastery of values and process efficiency. In the initial stage, significant literacy barriers were identified in Cycle I, where students tended to become bogged down in information redundancy and struggled to distinguish between objective facts and subjective opinions. These barriers arose due to the high cognitive load when students had to transform raw data from news coverage into concise news narratives. In this context, the application of the principles of 'Identify Value' and 'Map the Value Stream' according to Aleksander Musabelli (2025) proved effective in shifting students' mindset from merely 'completing tasks' to 'creating value' through the selection of topical and personal subjects.

Interestingly, individual coaching sessions in this study proved to be far more effective than conventional group discussions in overcoming these literacy barriers. Whilst group discussions are often hampered by disparities in understanding among members, individual coaching functions as specific scaffolding within the Zone of Proximal Development (ZPD), enabling researchers to identify bottlenecks or unique obstacles in each student's draft (Kusuma, 2025). Through intensive personal guidance, students receive direct feedback on their thought processes, thereby making the flow of ideas smoother. This has been empirically proven to increase the speed of journalistic production without compromising the quality of the content, as every technical obstacle in the news draft is addressed personally before entering the final editing stage.

The application of Lean Thinking in this educational context also has a direct impact on the syntactic and semantic quality of students' news writing. By adopting the principle of efficiency or the elimination of waste, students begin to reduce the use of long-winded and repetitive sentences, which syntactically increases the density of information in each paragraph. Semantically, the focus on the 'value' of the news compels students to be more selective in choosing accurate and highly impactful vocabulary, in line with the inverted pyramid standard. This aligns with the internalisation of the dimension of awareness in Deep Learning (Nadlir, 2025), where students experience a paradigm shift from viewing news texts as academic artefacts to seeing them as products of public communication that carry ethical responsibility. Maturity in terms of data accuracy and timeliness indicates that students have reached a level of deep learning that fosters a sense of ownership of their work.

Furthermore, the integration of critical reading techniques such as scanning and skimming, combined with structured discussions, plays a vital role in stimulating critical thinking. Pupils demonstrate acuity in deconstructing information and conducting in-depth analysis of the credibility of sources, which leads them to higher-order thinking skills. This process is then reinforced through the 'Seek Perfection' stage, where validation via actual publication on the school's news portal serves as psychological reinforcement, ensuring that these quality standards remain consistent. This phenomenon reinforces Biel's (2025) theory that the depth of critical reasoning is highly dependent on how information is managed and validated through rigorous processes. Ultimately, this quality-based redefinition of PjBL bridges the gap between academic theory and real-world needs, resulting in a learning cycle focused on achieving sustainable quality standards rather than merely completing tasks.

## CONCLUSION

The integration of Deep Learning approaches and the Project-Based Learning (PjBL) model has proven to transformatively enhance the news writing skills of Year 11 secondary school students. The effectiveness of this model is demonstrated by a significant surge in class achievement rates, rising from 20% in the pre-cycle to 90% by the end of Cycle II on a cumulative basis. This success was validated through the publication of students' news articles that met the standards of factual professional journalism and were suitable for publication on the school's digital portal. Thus, the synergy of the pedagogical cycle—ranging from theory to field reporting—has successfully transformed Year 11 high school students into critical and adaptive producers of information in line with digital publication standards.

The impact of this integrated model has also tangibly enhanced students' critical and collaborative thinking skills through the internalisation of the Deep Learning dimensions. Research findings indicate that through critical reading techniques (scanning and skimming) and personalised coaching, students were able to demonstrate sharp reasoning in verifying field data and distinguishing facts from subjective opinions. Collaboratively, students successfully integrated individual skills into journalistic teamwork to complete a comprehensive news writing project. Thus, the synergy between Lean Method quality management and this deep learning philosophy not only produces written work of high journalistic value but also transforms students into critical, conscious, and responsible information producers.

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