Human-in-the-Loop Pedagogy for Sustainable Quality Education: Lecturers' Roles in AI-Integrated English Reading Instruction

Abdul Hamid Aly, Zainal Rafli, Liliana Muliastuti

Universitas Negeri Jakarta, Indonesia

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ABSTRACT:
This study examines the pedagogical agency of English lecturers within Human-in-the-Loop pedagogy in AI-integrated English reading instruction. Situated within the growing use of artificial intelligence in EFL reading classrooms, the study explores how lecturers regulate AI-mediated learning while sustaining critical literacy, ethical awareness, learner autonomy, and humanistic educational values. A qualitative multiple case study design was employed, involving six English lecturers who integrated AI tools into reading-related courses. Data were collected through semi-structured interviews, classroom observations, and document analysis of syllabi, lesson plans, worksheets, AI-use guidelines, assessment rubrics, LMS instructions, lecturer feedback, and reflective teaching notes. The data were analyzed through thematic analysis, within-case analysis, and cross-case comparison. The findings indicate that lecturers' roles shifted from direct textual explainers into pedagogical facilitators, learning designers, ethical supervisors, feedback validators, critical literacy mediators, curriculum co-designers, and guardians of humanistic values. AI supported reading instruction through summarization, vocabulary assistance, text simplification, prompt generation, feedback, and cross-text comparison. However, its pedagogical value emerged only when lecturers positioned AI outputs as provisional materials for verification, critique, revision, and reflection. The study concludes that sustainable AI-integrated English reading instruction requires lecturer agency, ethical governance, process-based assessment, continuous professional development, and institutional support.

Keywords: Human-in-the-Loop Pedagogy, AI-Integrated Reading Instruction, English Lecturers, Sustainable Quality Education, Critical Literacy.

1. Introduction

Artificial intelligence has become one of the most influential forces in contemporary English language education. Its integration into reading instruction has transformed how learners access texts, receive feedback, build vocabulary, generate summaries, and interact with academic materials. In English as

a Foreign Language and English as a Second Language contexts, AI now appears through adaptive reading platforms, automated feedback systems, AI chatbots, text simplification tools, vocabulary support systems, generative AI applications, and learning analytics dashboards. These tools can assist learners in identifying main ideas, clarifying difficult vocabulary, simplifying complex passages, generating reading prompts, and obtaining immediate formative feedback (Immanuel & Mohamed Sahul Hameed M A, 2024; Liu & Lu, 2023; Tatnall, 2023; Zhao & Nazir, 2022). Such developments indicate that AI is no longer peripheral to language education. It has become part of the instructional ecology in which reading, interpretation, and language development take place.

The increasing presence of AI in English reading instruction has opened new possibilities for sustainable quality education. AI can support differentiated learning, offer individualized scaffolding, and expand access to reading resources for students with diverse proficiency levels. It can also help lecturers design reading tasks, monitor student responses, and identify patterns of misunderstanding more efficiently. In this sense, AI supports the broader post-pandemic transformation of education, where digital tools are expected to strengthen resilience, flexibility, and inclusion in teaching and learning (Henriksen et al., 2024; Immanuel & Mohamed Sahul Hameed M A, 2024; Tang, 2024; Tuomi, 2023). However, the pedagogical value of AI depends on how it is mediated by human educators. AI can generate summaries, explanations, and feedback, but it cannot fully understand classroom realities, student emotions, cultural nuance, ethical implications, or the deeper interpretive demands of reading. Therefore, AI integration requires strong lecturer agency, ethical judgement, and pedagogical leadership (Alam et al., 2024; Cohen et al., 2024; Haidar & Tassis, 2025; Saravi, 2025).

English reading is not a simple process of decoding written language. It involves literal comprehension, inferential reasoning, critical evaluation, vocabulary development, discourse awareness, intertextual interpretation, and reflective meaning-making. Students must learn how to locate information, interpret implied meanings, assess arguments, evaluate evidence, compare perspectives, and construct justified interpretations. In AI-supported classrooms, these reading competencies face new opportunities and new risks. AI-generated outputs may help students begin the reading process, but they may also encourage passive reliance on automated explanations. Students may accept AI summaries without checking textual evidence. They may use AI to replace interpretation rather than to strengthen it. These risks show why lecturers remain indispensable in AI-integrated reading pedagogy. Lecturers must guide students to question AI outputs, compare them with source texts, evaluate bias, and develop independent interpretive authority (Li, 2025; Liu & Lu, 2023; Tang, 2024; Tatnall, 2023).

This issue is strongly connected with the global agenda of sustainable quality education. SDG 4 emphasizes inclusive and equitable quality education and lifelong learning opportunities, while SDG 8 stresses decent work, professional development, and sustainable participation in changing work environments. AI-integrated English reading instruction touches both goals. It can support SDG 4 by widening access to learning resources, improving feedback, and enabling personalized reading pathways. It can also support SDG 8 by requiring lecturers to develop new professional competencies in AI literacy, ethical reasoning, digital pedagogy, and reflective practice (Jiang, 2025; Mariyono, 2026; Mikeladze et al., 2024; Tham et al., 2022; Xie et al., 2025). Yet these outcomes cannot be assumed. Without lecturer readiness, institutional support, ethical governance, and sustainable workload policies, AI may intensify inequalities, increase surveillance, weaken academic integrity, and burden lecturers with additional responsibilities (Aguilar et al., 2024; Alé-Silva et al., 2025; Committee, 2023; Isma'il et al., 2024).

The human-in-the-loop perspective provides a strong theoretical response to this problem. Human-in-the-loop pedagogy positions lecturers as active designers, monitors, interpreters, and ethical governors of AI-supported learning processes. It rejects the idea that AI can replace teacher expertise. Instead, it argues that AI should remain within a continuous cycle of human guidance, evaluation,

and refinement. In English reading instruction, this means that lecturers curate texts, design tasks, calibrate AI prompts, evaluate AI-generated feedback, protect academic integrity, and sustain humanistic interaction in the classroom (Adeika et al., n.d.; Chatzichristofis, 2025; Cohen et al., 2024). The lecturer becomes a pedagogical agent who ensures that AI functions as an amplifier of reading development rather than a substitute for critical thinking.

Despite the rapid growth of research on AI in language education, several important gaps remain. First, much existing research emphasizes student acceptance, motivation, performance, autonomy, and technological attitudes, while giving less attention to how lecturers experience and reconstruct their professional roles in AI-integrated classrooms. This creates a conceptual imbalance. AI integration changes not only how students learn, but also how lecturers design, guide, assess, and humanize instruction. Studies on AI-supported language learning have shown the benefits of adaptive scaffolding and automated feedback, but they have not always examined how lecturers maintain pedagogical authority and ethical responsibility when AI becomes part of reading instruction (Alamäki et al., 2024; Hernández, 2024; Tatnall, 2023; Xu, 2025; Zhao & Nazir, 2022).

Second, studies on AI-supported reading often focus on functional affordances such as summarization, vocabulary support, text simplification, comprehension assistance, and automated feedback. These studies are useful, but they do not fully explain how lecturers safeguard critical literacy, ethical awareness, and humanistic values in AI-mediated classrooms. Reading instruction should not train students to depend on instant answers. It should help them examine claims, detect bias, assess credibility, interpret meaning, and justify arguments through textual evidence. The literature therefore needs a stronger account of lecturer mediation in maintaining critical and reflective reading practices when AI tools become increasingly persuasive, accessible, and normalized (Barjesteh, 2026; Conrad & Hall, 2024; Coşgun, 2025; Haidar & Tassis, 2025).

Third, there is still limited integration between AI reading pedagogy and sustainability-oriented educational frameworks. Many studies discuss AI in terms of innovation and efficiency, but fewer connect it directly to SDG 4 and SDG 8. Sustainable AI integration requires more than technological adoption. It requires inclusive access, fair assessment, transparent governance, lecturer professional development, and humane work conditions. It also requires institutions to recognize that lecturers need time, support, training, and autonomy to use AI responsibly (Dung, 2025; Henriksen et al., 2024; Pramjeeth & Ramgovind, 2024; Yeter et al., 2024). Without this support, AI may produce technical efficiency but fail to sustain educational quality.

Fourth, methodological gaps remain in understanding AI-integrated reading instruction across different contexts. Much of the literature still relies on conceptual argument, single-site studies, or general accounts of AI adoption. There is a need for qualitative multiple case study research that explores how lecturers enact human-in-the-loop pedagogy across diverse institutional cultures, student profiles, curricula, and digital infrastructures. Such a design can reveal how lecturer beliefs, institutional policies, available technologies, and local classroom realities shape AI-supported reading pedagogy (Faucher et al., 2025; Hubbard & Schulze, 2025; Molek, 2023; Saravi, 2025). This kind of inquiry can produce context-sensitive insights that are more useful for applied linguistics, teacher education, and higher education policy.

To address these gaps, the present study proposes Human-in-the-Loop Pedagogy for Sustainable Quality Education as a framework for investigating lecturers' roles in AI-integrated English reading instruction. The study focuses on how lecturers perceive, enact, and negotiate their roles when AI becomes embedded in reading pedagogy. It positions lecturers as facilitators, ethical guides, critical reading mediators, learning designers, guardians of humanistic values, and professional learners. The study asks how lecturers maintain interpretive depth, ethical responsibility, and learner agency while using AI to support reading comprehension, vocabulary development, feedback, and critical literacy.

The novelty of this study lies in four interrelated contributions. Conceptually, it reframes lecturers as human-in-the-loop pedagogical agents rather than passive users of AI. Empirically, it examines lecturers' lived professional roles through a qualitative multiple case study involving interviews, classroom observations, and document analysis. Pedagogically, it formulates a role-based model of lecturer agency in AI-supported reading instruction. Sustainability-wise, it connects AI-integrated English reading pedagogy with SDG 4 and SDG 8 by showing how lecturer professionalism supports inclusive education and decent academic work. This contribution extends current scholarship on AI in language education by linking AI literacy, ethical governance, reading pedagogy, lecturer development, and sustainable quality education within one coherent framework (Allison et al., 2025; Brown et al., 2021; Koka, 2023; Lameras & Arnab, 2021; Nyaaba, 2026).

This study is grounded in an integrated theoretical and conceptual framework that positions Human-in-the-Loop pedagogy as the central lens for understanding lecturers' roles in AI-integrated English reading instruction. The framework rests on the premise that artificial intelligence can strengthen reading pedagogy only when its technical affordances are actively mediated by lecturer agency, ethical judgement, critical literacy orientation, and sustainable professional development. AI-supported reading tools, including adaptive platforms, automated feedback systems, chatbots, text simplification tools, vocabulary assistance, generative AI applications, and learning analytics, can support students in accessing texts, identifying main ideas, generating summaries, clarifying vocabulary, receiving feedback, and developing individualized reading pathways (Immanuel & Mohamed Sahul Hameed M A, 2024; Liu & Lu, 2023; Tatnall, 2023; Zhao & Nazir, 2022). However, these tools do not automatically produce deep comprehension, critical interpretation, or ethical learning. Their pedagogical value depends on how lecturers design, supervise, interpret, and humanize AI-mediated reading practices (Alam et al., 2024; Cohen et al., 2024; Haidar & Tassis, 2025; Saravi, 2025; Tang, 2024).

The Human-in-the-Loop perspective conceptualizes lecturers as active pedagogical agents rather than passive users of automated systems. In this view, lecturers remain responsible for curating authentic texts, setting learning objectives, designing inquiry-based reading activities, interpreting AI-generated feedback, diagnosing misconceptions, guiding ethical AI use, and preserving learner agency. This position rejects a replacement model of AI and supports an augmentation model in which AI functions as a scaffold for human judgement, not a substitute for it (Adeika et al., n.d.; Aguilar et al., 2024; Chatzichristofis, 2025; Mariyono, 2026). In AI-integrated English reading classrooms, the lecturer's presence is essential because reading is not merely a technical act of decoding. It involves literal comprehension, inference, argument evaluation, vocabulary depth, discourse awareness, intertextual comparison, cultural interpretation, and reflective meaning-making. AI may accelerate access to explanations, but lecturers ensure that students question, verify, compare, and justify interpretations through textual evidence (Jiang, 2025; Li, 2025; Molek, 2023; Yeter et al., 2024).

The framework is also informed by UNESCO's AI Competency Framework for Teachers, which emphasizes a human-centered mindset, ethics of AI, AI foundations and applications, AI pedagogy, and AI for professional learning. These domains clarify the competencies lecturers need to lead responsible AI-supported reading instruction. A human-centered mindset requires lecturers to preserve empathy, inclusion, learner dignity, and dialogic interaction. Ethics of AI requires attention to transparency, privacy, bias, accountability, academic integrity, and responsible data use. AI foundations and applications require lecturers to understand the strengths and limits of AI tools. AI pedagogy requires lecturers to design reading tasks that develop comprehension, inference, critical literacy, and metacognition. AI for professional learning requires continuous lecturer development in response to fast technological change (Mikeladze et al., 2024; Tham et al., 2022; Xie et al., 2025). This competency-based orientation links classroom practice with lecturer professionalism and supports the need for institutional training, professional

learning communities, and governance systems (Alamäki et al., 2024; Hernández, 2024; Hubbard & Schulze, 2025; Xu, 2025).

Conceptually, this study views AI-supported reading activities as the input, lecturer Human-in-the-Loop mediation as the core process, and sustainable critical reading outcomes as the expected result. AI can provide vocabulary glosses, summaries, prompts, readability support, feedback, and analytics, but lecturers determine how these outputs are used pedagogically. As facilitators, lecturers design activities in which AI prompts stimulate discussion rather than dictate meaning. As ethical guides, they establish rules for responsible AI use, academic honesty, and data awareness. As critical reading mediators, they guide students to interrogate AI outputs, detect bias, evaluate source credibility, and support claims with textual evidence. As guardians of humanistic values, they preserve empathy, cultural responsiveness, student voice, and reflective judgement. As professional learners, they continue developing AI literacy, ethical reasoning, and pedagogical design competence (Barjesteh, 2026; Conrad & Hall, 2024; Coşgun, 2025; Hezam & Alkhateeb, 2024; Nyaaba, 2026).

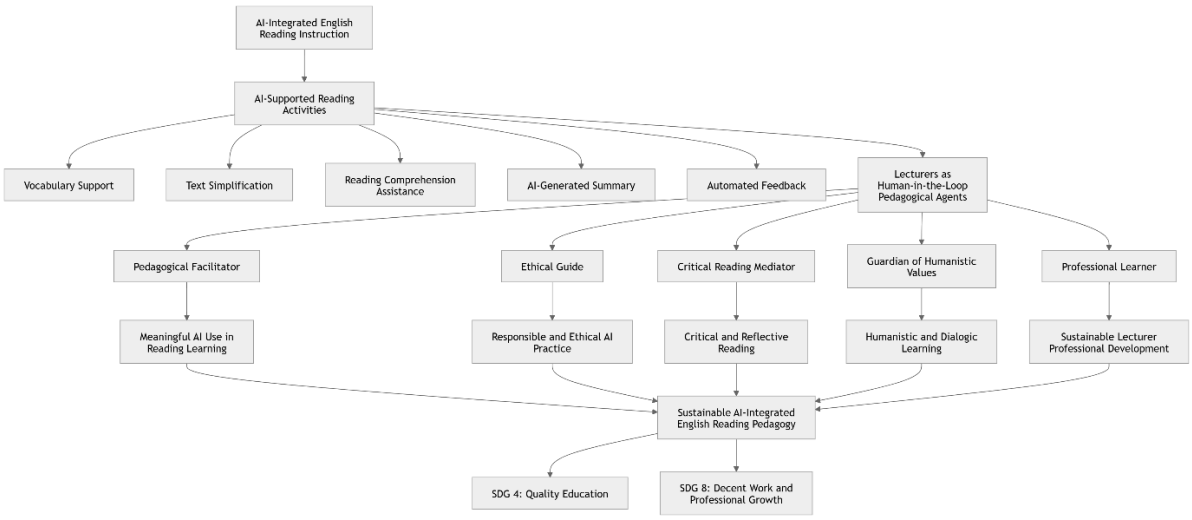

Figure 1, Conceptual Framework

The framework further integrates Explainable AI and learning analytics as supporting concepts. Explainable AI allows lecturers and students to examine the rationale behind AI-generated summaries, recommendations, or interpretations. This makes AI outputs contestable and teachable rather than final and authoritative. Lecturers can use explainability to train students to compare machine reasoning with human interpretation, identify unsupported claims, and evaluate the social and epistemic implications of AI-assisted reading. Learning analytics can also support reflective teaching when lecturers triangulate AI-derived indicators with classroom observation, student work, portfolio evidence, and professional judgement. However, analytics must be governed by consent, privacy protection, fairness, and transparency so that classrooms do not become surveillance spaces (Alé-Silva et al., 2025; Committee, 2023; Faucher et al., 2025; Isma'il et al., 2024; Pramjeeth & Ramgovind, 2024).

The sustainability dimension of the framework connects AI-integrated English reading pedagogy with SDG 4 and SDG 8. SDG 4 is represented through inclusive access to quality reading resources, critical literacy, equitable feedback, and lifelong learning. SDG 8 is represented through lecturer professional development, decent academic work, workload awareness, pedagogical autonomy, and ethical institutional governance. Sustainable AI integration therefore requires not only competent students but also empowered lecturers who receive professional support, policy clarity, and humane working conditions (Allison et al., 2025; Brown et al., 2021; Dung, 2025; Henriksen et al., 2024; Koka,

2023; Lameras & Arnab, 2021; Tuomi, 2023). Professional development should include AI literacy, prompt design, assessment calibration, ethical case analysis, reflective practice, and collaborative learning through professional communities (Abouleish et al., 2024; Buragohain & Chaudhary, 2025; Camarata, 2025; Doğan et al., 2024; Gellai, 2022; Jarosinski et al., 2021; A. Nguyen, 2025; T. X. Nguyen, 2024; OECD, 2024; Pike et al., 2025; Zwetsloot & Corrigan, 2022).

Institutional governance completes the framework because responsible AI reading pedagogy cannot depend only on individual lecturer initiative. Universities need coherent policies on data privacy, academic integrity, assessment validity, workload distribution, AI ethics, and professional recognition. Governance structures such as ethics committees, AI policy boards, professional development systems, and accountability mechanisms can help align technological innovation with educational quality and lecturer dignity (Gowda, 2023; Khatri & Karki, 2023; Nadim & Fuccio, 2025). Thus, the combined theoretical and conceptual framework explains AI-integrated English reading instruction as a dynamic cycle: AI provides technical scaffolds, lecturers mediate them through Human-in-the-Loop roles, students develop critical and ethical reading competencies, and institutions sustain the process through governance and professional development. This framework guides the study in examining how lecturers perceive, enact, and negotiate their roles as facilitators, ethical guides, critical literacy mediators, guardians of humanistic values, and professional learners in sustainable AI-supported English reading classrooms.

The study is guided by three research questions. First, how do English lecturers perceive their changing roles in AI-integrated English reading instruction? Second, how do lecturers enact human-in-the-loop pedagogy as facilitators, ethical guides, and guardians of humanistic values in AI-supported reading classrooms? Third, what pedagogical, ethical, and professional challenges do lecturers experience when integrating AI into English reading instruction? These questions allow the study to examine lecturer agency from perceptual, practical, ethical, and professional perspectives.

The purpose of this study is to investigate the pedagogical, ethical, and professional reconfiguration of English lecturers' roles within AI-integrated English reading instruction through a Human-in-the-Loop pedagogical framework. More specifically, the study aims to examine how lecturers perceive and enact their roles as pedagogical facilitators, ethical regulators, critical literacy mediators, guardians of humanistic values, and continuous professional learners in AI-supported reading classrooms. It also seeks to identify the challenges that emerge when AI tools are used to support text comprehension, vocabulary development, automated feedback, reading strategy formation, and learner engagement. Through this inquiry, the study aims to construct a conceptually grounded model of sustainable AI-integrated English reading pedagogy that connects lecturer agency, responsible AI mediation, critical reading development, and sustainable quality education.

The significance of this study lies in its potential contribution to applied linguistics, AI-mediated language pedagogy, teacher professional development, and sustainable higher education governance. Theoretically, the study advances the Human-in-the-Loop perspective by positioning lecturers as central epistemic and ethical agents who regulate AI-supported reading processes rather than merely operate technological tools. Pedagogically, it provides empirical insight into how AI can be integrated to strengthen inferential comprehension, critical interpretation, textual evaluation, metacognitive awareness, and reflective meaning-making without reducing students' interpretive autonomy. Professionally, the study informs the design of lecturer development programs that cultivate AI literacy, ethical reasoning, assessment validity, and digital pedagogical competence. Institutionally, the findings may guide universities in developing responsible AI policies, transparent assessment mechanisms, and sustainable professional support systems that promote inclusive quality education, academic integrity, and decent academic work.

2. Methodology

This study adopts a qualitative multiple case study design to investigate how English lecturers perceive,

interpret, and enact their roles in AI-integrated English reading instruction. A qualitative design is appropriate because the study focuses on lecturers' lived professional experiences, pedagogical decisions, ethical considerations, and classroom practices rather than on numerical measurement alone. The multiple case study approach enables the researcher to examine variations across lecturers, classrooms, institutional contexts, and AI-use practices. Each lecturer or AI-supported reading class is treated as a distinct case, while cross-case analysis is used to identify shared patterns, contextual differences, and transferable insights. This design is relevant to the study because AI adoption in English reading pedagogy is shaped by teacher agency, institutional support, digital infrastructure, learner profile, and ethical governance (Immanuel & Mohamed Sahul Hameed M A, 2024; Liu & Lu, 2023; Saravi, 2025; Tatnall, 2023; Zhao & Nazir, 2022). It also supports the human-in-the-loop perspective, which views lecturers as active pedagogical agents who design, monitor, evaluate, and humanize AI-supported learning processes (Adeika et al., n.d.; Aguilar et al., 2024; Cohen et al., 2024; Tang, 2024).

The research sites are selected purposively based on the presence of AI-supported English reading practices. The study may involve higher education institutions where lecturers use AI tools for reading instruction, such as generative AI, AI chatbots, automated feedback tools, text simplification platforms, vocabulary support applications, or learning analytics systems. The participants are English lecturers who teach reading-related courses, including academic reading, critical reading, extensive reading, or other English literacy courses. The proposed sample consists of four to six lecturers, depending on access, depth of data, and the richness of each case. The participant criteria include professional experience as English lecturers, direct involvement in AI-supported reading instruction, willingness to participate in interviews and classroom observation, and willingness to share relevant instructional documents. This purposive strategy allows the study to capture lecturers who have practical experience in negotiating AI use, ethical issues, pedagogical design, and student engagement in reading classrooms (Alam et al., 2024; Chatzichristofis, 2025; Haidar & Tassis, 2025; Mariyono, 2026; Mikeladze et al., 2024; Tham et al., 2022; Xie et al., 2025).

Data are collected through three complementary techniques: semi-structured interviews, classroom observations, and document analysis. Semi-structured interviews are used to explore lecturers' perceptions of their changing roles in AI-integrated reading instruction. The interviews focus on lecturers' understanding of AI, their experiences in using AI for reading tasks, their role as facilitators and learning designers, their ethical concerns, their strategies for maintaining humanistic values, their professional development needs, and their views on institutional support. This technique allows participants to describe their professional reasoning in depth while giving the researcher flexibility to ask follow-up questions. Classroom observations are conducted to examine how lecturers enact human-in-the-loop pedagogy during AI-supported reading activities. Observation focuses on how AI tools are introduced, how students interact with AI and texts, how lecturers guide reading comprehension, how ethical issues are addressed, how critical reading is encouraged, and how humanistic classroom interaction is sustained. Document analysis is used to examine lesson plans, reading tasks, AI-use guidelines, assessment rubrics, LMS instructions, student worksheets, lecturer feedback, reflective teaching notes, course syllabi, and RPS documents. These documents help compare what lecturers say, what they do, and what is formally represented in instructional design (Alé-Silva et al., 2025; Committee, 2023; Faucher et al., 2025; Hernández, 2024; Isma'il et al., 2024; Jiang, 2025; Li, 2025).

The data analysis follows thematic analysis combined with within-case and cross-case procedures. First, interview transcripts, observation notes, and instructional documents are read repeatedly to achieve data familiarization. Second, initial codes are generated from meaningful units related to lecturer roles, AI-supported reading practices, ethical decision-making, reading pedagogy, professional identity, and sustainable education. Third, codes are grouped into broader categories, such as pedagogical facilitator, ethical guide, critical reading mediator, learning designer, guardian of humanistic values, AI literacy builder,

and professional learner. Fourth, within-case analysis is conducted to construct a detailed profile of each lecturer's experience and practice. Fifth, cross-case analysis is used to compare similarities and differences across cases. Finally, themes are synthesized to formulate a conceptual model of human-in-the-loop pedagogy for sustainable AI-integrated English reading instruction. This analytical procedure is consistent with research that emphasizes teacher agency, ethical governance, explainable AI, critical digital pedagogy, and professional learning in AI-supported education (Alamäki et al., 2024; Conrad & Hall, 2024; Coşgun, 2025; Dung, 2025; Hezam & Alkhateeb, 2024; Hubbard & Schulze, 2025; Lameras & Arnab, 2021; Nyaaba, 2026; Xu, 2025).

Trustworthiness is ensured through triangulation, member checking, thick description, peer debriefing, audit trail, and reflexivity. Triangulation is conducted by comparing data from interviews, observations, and documents. Member checking is used to confirm whether the researcher's interpretation reflects participants' intended meanings. Thick description provides detailed accounts of classroom context, AI use, lecturer mediation, and student interaction. Peer debriefing strengthens analytical credibility through academic discussion of coding and theme construction. An audit trail documents research decisions, coding processes, and analytical revisions. Reflexivity is used to examine the researcher's assumptions about AI, English reading pedagogy, and lecturer professionalism. These strategies are important because AI-integrated education involves complex relations among technology, pedagogy, ethics, institutional policy, and professional identity (Allison et al., 2025; Camarata, 2025; Doğan et al., 2024; Gellai, 2022; Gowda, 2023; Khatri & Karki, 2023; Molek, 2023; Nadim & Fuccio, 2025; T. X. Nguyen, 2024; Pike et al., 2025; Zwetsloot & Corrigan, 2022).

Ethical considerations are central to this study. All participants are asked to provide informed consent, and their participation is voluntary. The study protects anonymity, confidentiality, and the right to withdraw. Since the research involves AI-supported learning, special attention is given to digital privacy, responsible data use, student learning records, and the risk of AI dependency. Classroom observation data are reported without exposing personal identity, institutional vulnerability, or evaluative judgment. The study also avoids positioning lecturers as deficient users of technology. Instead, it examines how lecturers negotiate AI integration within real pedagogical, ethical, and institutional constraints. This ethical stance aligns with sustainable quality education, SDG 4, and SDG 8 because responsible AI use requires fairness, transparency, professional empowerment, and humane academic work (Abouleish et al., 2024; Buragohain & Chaudhary, 2025; OECD, 2024; Pramjeeth & Ramgovind, 2024; Tuomi, 2023; Yeter et al., 2024).

4. Results

The results are drawn from three qualitative data sources: semi-structured interviews with six English lecturers, classroom observations across six AI-integrated reading classes, and document analysis of syllabi, lesson plans, worksheets, AI-use guidelines, rubrics, LMS instructions, feedback samples, and reflective teaching notes. The interview data show that all six lecturers used AI in reading instruction, although their dominant role orientations differed across cases, including facilitator, ethical guide, feedback mediator, critical literacy mediator, assessment evaluator, curriculum co-designer, guardian of humanistic values, and professional learner. The participant matrix shows diverse teaching experience, ranging from 7 to 21 years, and varied AI tools, including ChatGPT, Gemini, Claude, Copilot, Perplexity, QuillBot, Scite, Grammarly, AI summarizers, AI vocabulary assistants, LMS-based AI quiz tools, and corpus tools.

Table 1. Participant Profile and Dominant Role Orientation

Lecturer	Teaching Experience	Course Context	Common AI Tools	Dominant Role Orientation

L1	15 years	Academic Reading and Critical Reading	ChatGPT, Gemini, QuillBot, LMS AI quiz tools	Facilitator and ethical guide
L2	9 years	Reading for General Communication and ESP Reading	ChatGPT, Perplexity, Google Lens	Learning designer and feedback mediator
L3	21 years	Advanced Reading and Literary Reading	ChatGPT, text simplification tools, AI dictionary	Guardian of humanistic values
L4	7 years	Digital Reading and Extensive Reading	ChatGPT, Claude, Elicit, AI summarizer	Critical literacy mediator
L5	12 years	Academic Reading and Research Article Reading	ChatGPT, Scite, Grammarly, AI detector	Assessment evaluator and integrity supervisor
L6	18 years	Analytical Reading and Syntopical Reading	ChatGPT, Copilot, AI vocabulary assistant, corpus tools	Curriculum co-designer and professional learner

The first major result concerns lecturer role transformation. Interview responses show that lecturers no longer position themselves mainly as direct explainers of reading texts. They report a shift toward guiding interpretation, designing AI-supported reading pathways, evaluating AI-generated summaries, supervising ethical AI use, and helping students verify machine outputs with textual evidence. L1 described the shift from being the main source of explanation to being a guide who helps students evaluate explanations. L2 reported a shift toward designing learning pathways. L4 identified his role as a critical literacy coach, while L6 described his role as more strategic and curriculum-oriented.

The second result concerns AI use as a scaffold rather than a substitute. Across interview, observation, and document data, AI was used mainly for summarization, vocabulary explanation, prompt generation, text simplification, feedback support, comparison, and cross-text mapping. In classroom observations, the strongest practices appeared when students were required to compare AI output with the original text. Observation data show that Lecturer A asked students to verify AI-generated summaries through textual evidence. Lecturer B used AI output to examine bias and perspective. Lecturer D asked students to classify AI feedback as accepted, rejected, or revised. Lecturer F used AI to support cross-text comparison, followed by student revision based on close reading.

Table 2. Cross-Case Classroom Observation Results

Dimension	**Most Evident Finding**
AI integration	AI supported summarization, vocabulary, feedback, comparison, and cross-text mapping.
Lecturer facilitation	Lecturers guided discussion, clarified misconceptions, and asked evidence-based questions.

Ethical guidance	Academic integrity was visible, but privacy and data governance appeared less consistently.
Critical reading	Students evaluated bias, missing context, unsupported claims, and author stance.
Humanistic values	Dialogue, empathy, student voice, and reflective judgment appeared across cases.
Assessment and feedback	Strong cases triangulated AI feedback, lecturer comments, peer feedback, and textual evidence.
Professional practice	Lecturers needed support in AI literacy, assessment design, ethics, and workload management.

The third result shows the emergence of human-in-the-loop routines. Four recurring routines appeared across cases: AI output verification, AI audit cycle, evidence trail, and comparative revision. L1 used a three-step routine in which students read first, used AI second, and compared both outputs third. L4 used an AI audit checklist covering accuracy, missing evidence, tone, bias, and alignment with the original text. L5 required students to create a table containing AI output, original textual evidence, and student verification. L6 used iterative comparison, asking students to mark AI statements as accurate, partially accurate, unsupported, or misleading.

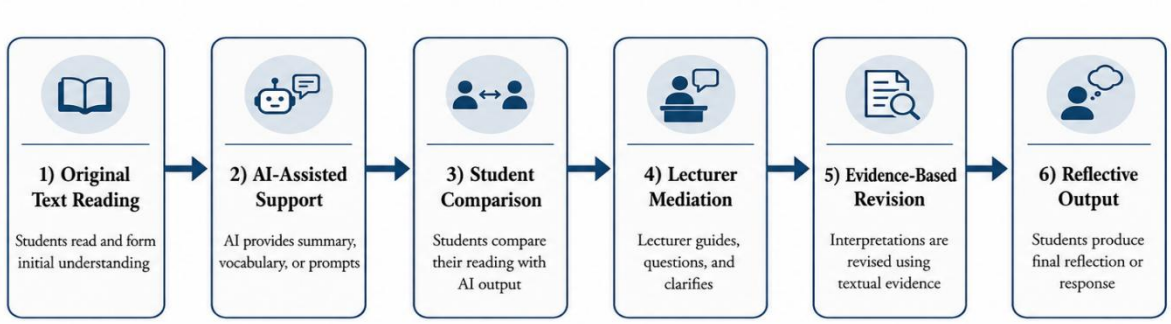

Figure 1. Human-in-the-Loop Reading Routine Identified in the Data

The fourth result concerns ethical AI use. Interview and document data show that lecturers addressed plagiarism, over-reliance, AI-use disclosure, prompt history, academic honesty, fabricated sources, and data privacy. L2 required an AI-use declaration. L4 required an AI interaction log. L5 required prompt history and evidence trails for article reading. L6 built AI-use notes into the syllabus and rubric. Document analysis confirms that AI-use guidelines commonly permitted AI for vocabulary support, summary checking, question generation, and feedback comparison, but prohibited fully AI-generated answers submitted as students' own work.

The fifth result relates to critical literacy mediation. Across the six cases, lecturers asked students to evaluate AI summaries, detect bias, identify missing information, examine tone, check source credibility, compare authorial stance, and justify claims with textual evidence. Classroom observation shows that the most visible critical reading moments occurred when students challenged AI-generated interpretations and revised them based on paragraph-level evidence. Document analysis also shows that stronger worksheets asked students to compare their own interpretation with AI-generated responses and then revise their answers using textual evidence.

The sixth result concerns humanistic values. Interview data show that lecturers preserved student voice, dialogue, cultural interpretation, empathy, humility, reflective judgment, and confidence. L3 emphasized that deep reading requires patience, silence, and reflection. L4 required personal responses after AI use. L5 connected academic reading with honesty, humility, and respect for scholarly work. Observation data show that humanistic values appeared through warm dialogue, reflective journals, respectful disagreement, encouragement, and cultural sensitivity.

The seventh result concerns assessment. Classroom and document data show that assessment shifted from product-based evaluation toward process-based evaluation. Stronger rubrics assessed comprehension, inference, critical interpretation, textual evidence, AI-use transparency, originality, reflection, and responsible AI use. Lecturer feedback samples focused on interpretation, reasoning, evidence, organization, and student dependence on AI. Document analysis also shows that several LMS instructions required students to submit worksheets, reflective notes, or AI-use logs.

Table 3. Main Results Across Data Sources

Main Result	Interview Evidence	Observation Evidence	Document Evidence
Role transformation	Lecturers shifted toward design, mediation, and ethical supervision.	Lecturers guided AI-supported reading tasks.	RPS and lesson plans positioned lecturers as facilitators and evaluators.
AI as scaffold	AI supported summaries, vocabulary, and comparison.	AI outputs were verified with text evidence.	AI was written as support, not replacement.
Ethical AI use	AI-use declaration, prompt logs, and integrity rules appeared.	Academic integrity was discussed in most cases.	Guidelines addressed permitted and prohibited AI use.
Critical literacy	Lecturers asked students to question AI outputs.	Bias, missing context, and evidence were examined.	Worksheets required evaluation of AI-generated responses.
Humanistic values	Student voice and reflection were emphasized.	Dialogue and empathy appeared in classroom interaction.	Reflective prompts and feedback preserved learner agency.
Professional development	Lecturers requested training and policy clarity.	Professional practice needed stronger support.	Reflective notes showed training and workload concerns.

Overall, the results show six significant findings: lecturers' roles shifted toward mediation and design; AI functioned mainly as a scaffold; human-in-the-loop routines were visible across cases; ethical AI use became a recurring concern; critical literacy was strengthened through AI-output evaluation; and sustainable AI-integrated reading required professional development, clearer policy, and assessment systems that combine AI support with lecturer judgment.

5. Discussion

The findings indicate that AI-integrated English reading instruction changes the professional role of lecturers from direct text explainers into pedagogical mediators, ethical supervisors, critical literacy guides, learning designers, feedback evaluators, and professional learners. This interpretation directly responds to the first research

objective, namely to explore lecturers' perceptions of their changing roles in AI-integrated reading instruction. The interview data show that lecturers understand AI as a support system, cognitive scaffold, co-processing tool, and preliminary assistant, not as the main teacher. This pattern confirms the central claim of the Human-in-the-Loop framework: AI can assist reading processes, but lecturer judgment remains necessary to regulate meaning, evidence, ethics, and classroom interaction. The interview responses also show that lecturers' authority does not disappear in AI-supported classrooms. It changes form. Their authority now rests more strongly on their ability to guide interpretation, question AI-generated outputs, design evidence-based tasks, and help students distinguish surface comprehension from deeper reading (Immanuel & Mohamed Sahul Hameed M A, 2024; Liu & Lu, 2023; Tatnall, 2023; Zhao & Nazir, 2022). This interpretation is supported by the interview data, where lecturers reported role shifts toward facilitation, learning design, critical literacy coaching, assessment verification, and curriculum co-design.

The findings also address the second objective, which is to analyze how lecturers enact Human-in-the-Loop pedagogy in classroom practices. Classroom observations show that HiTL pedagogy appeared most clearly when lecturers required students to read the original text first, use AI as a secondary support, compare AI outputs with textual evidence, and revise their interpretation through lecturer-guided discussion. This routine shows that AI became pedagogically meaningful only when its output was treated as provisional, contestable, and open to verification. In several observed cases, AI was used for summarization, vocabulary explanation, feedback, comparison, and cross-text mapping, but the strongest practices emerged when lecturers asked students to question AI outputs, detect missing context, revise unsupported claims, and defend interpretations with textual evidence. These findings support the literature which argues that AI should augment, not replace, human expertise in education (Adeika et al., n.d.; Aguilar et al., 2024; Cohen et al., 2024; Tang, 2024). They also strengthen the argument that reading pedagogy in the AI era must cultivate verification, inference, critical interpretation, and reflective judgment rather than passive acceptance of machine-generated answers.

The results further demonstrate that critical literacy becomes stronger when AI outputs become objects of critique. This finding is important for English reading pedagogy because reading involves more than identifying main ideas or understanding vocabulary. It requires students to evaluate claims, authorial stance, bias, tone, missing perspectives, cultural framing, and textual evidence. The observed classrooms showed that students were more engaged when AI use required comparison, critique, revision, or group negotiation. This aligns with Cohen et al. (2024), Alam et al. (2024), Haidar and Tassis (2025), and Saravi (2025), who caution that AI-generated outputs may lack contextual nuance, cultural authenticity, and affective sensitivity. The present findings extend this literature by showing how lecturers can transform AI limitations into teaching opportunities. When AI produces an incomplete summary, a neutralized interpretation, or a generic critique, lecturers can use that weakness to teach students how to identify omission, evaluate evidence, and restore contextual meaning.

The third objective concerns pedagogical, ethical, and professional challenges. The findings show three major challenges. First, student over-reliance on AI remains a central pedagogical concern. Lecturers reported that some students used AI to avoid reading, copied AI-generated summaries, or trusted fluent machine outputs without checking the original text. Second, ethical AI use remains uneven. Although most lecturers addressed plagiarism and academic integrity, classroom observations and document analysis show that privacy, data governance, AI bias, prompt transparency, and disclosure rules were not consistently formalized. Third, lecturers need stronger professional development. They require training in prompt design, AI literacy, ethical governance, AI-aware assessment, feedback calibration, and workload management. These findings support previous literature that places teacher AI competence, institutional governance, and sustainable professional development at the center of responsible AI integration (Jiang, 2025;

Mariyono, 2026; Mikeladze et al., 2024; Tham et al., 2022; Xie et al., 2025). The document analysis confirms that ethical rules, assessment rubrics, AI-use guidelines, and professional development needs appear in instructional artifacts, but their explicitness varies across cases.

The theoretical implication of this study is that Human-in-the-Loop pedagogy should be understood as a concrete pedagogical model, not only as an abstract ethical principle. The findings show that HiTL operates through identifiable classroom routines: original text reading, AI-assisted support, student comparison, lecturer mediation, evidence-based revision, and reflective output. This model extends the literature on AI in language education by locating lecturer agency at the center of AI-supported reading pedagogy. It also refines the idea of AI augmentation. Augmentation does not mean adding AI tools to existing lessons. It means designing a structured relationship between AI assistance and human judgment. In this relationship, AI supports access, speed, and feedback, while lecturers preserve interpretation, ethics, evidence, cultural nuance, and humanistic meaning. This theoretical contribution is consistent with the study's proposed novelty, which frames lecturers as HiTL pedagogical agents who sustain interpretive depth, critical literacy, and humanistic engagement in AI-enhanced reading classrooms.

The practical implication is that English lecturers need clear pedagogical routines for AI-integrated reading instruction. Based on the findings, effective practice should begin with reading objectives, not with AI tools. Lecturers should require students to engage with the original text before using AI, compare AI output with textual evidence, keep AI-use logs or declarations, and revise interpretations through human-guided reflection. Reading worksheets should include prompts that ask students to identify what AI captured, what AI missed, what evidence supports or rejects the AI output, and what interpretation students finally defend. Assessment should also move from product-based evaluation toward process-based evaluation. Rubrics need to assess reading comprehension, inference, critical interpretation, textual evidence, ethical AI use, reflection, and originality. These practices help protect students from dependency while using AI to strengthen vocabulary support, summarization, comparison, and feedback.

The policy implication is that institutions should not leave AI integration to individual lecturer improvisation. The findings show that lecturers need institutional AI-use guidelines, assessment policies, privacy protection, disclosure rules, and professional development programs. Course syllabi, RPS documents, LMS instructions, worksheets, and rubrics should include explicit rules on permitted AI use, prohibited AI substitution, responsible disclosure, source verification, data privacy, and bias awareness. Institutions also need continuous professional development programs that address AI literacy, prompt design, ethical AI governance, assessment redesign, and workload implications. This is closely related to SDG 4 and SDG 8. AI can support quality education when it improves access, feedback, critical literacy, and learner autonomy. It can support decent academic work when institutions recognize that responsible AI integration requires time, training, collaboration, and policy clarity (Henriksen et al., 2024; Pramjeeth & Ramgovind, 2024; Tuomi, 2023; Yeter et al., 2024).

Despite these contributions, the study has limitations. First, the data were drawn from six lecturer cases, so the findings provide analytical depth rather than broad statistical generalization. Second, the study focuses on lecturers' roles and classroom practices, while student learning outcomes were not measured quantitatively. Third, the data rely on interviews, observations, and documents, which can reveal perceptions and practices but may not capture long-term changes in reading proficiency. Fourth, the study was conducted within selected AI-supported reading contexts, so the findings may differ in institutions with stronger AI infrastructure, stricter AI policies, or limited digital access. Fifth, the rapid development of AI tools means that classroom practices and ethical concerns may change quickly. Future research should include longitudinal designs, student outcome data, comparative institutional studies, and deeper analysis of AI-supported assessment validity. These future directions would strengthen the evidence base for sustainable

Human-in-the-Loop pedagogy in English reading instruction.

6. Conclusion

This study concludes that AI-integrated English reading instruction becomes pedagogically meaningful when lecturers remain active human-in-the-loop agents who design, supervise, evaluate, and humanize the use of AI in reading classrooms. The findings show that AI was used to support summarization, vocabulary explanation, text simplification, prompt generation, feedback, comparison, and cross-text mapping. However, these functions did not automatically produce deep reading. The strongest learning practices appeared when lecturers required students to read the original text first, compare AI-generated outputs with textual evidence, revise interpretations, and produce reflective responses. This confirms that AI should function as a scaffold for reading, not as a substitute for lecturer judgment or student thinking.

The study also found that lecturers' roles changed significantly in AI-supported reading environments. Lecturers no longer acted only as content explainers. They became pedagogical facilitators, learning designers, ethical guides, critical literacy mediators, feedback evaluators, guardians of humanistic values, and professional learners. Interview, observation, and document data showed that lecturers guided students to question AI summaries, verify claims, detect bias, evaluate missing context, examine authorial stance, and support interpretations with textual evidence. These findings strengthen the human-in-the-loop view that AI can enhance reading instruction only when human educators remain central in regulating meaning, ethics, and assessment.

A further conclusion is that critical literacy and ethical awareness must become core elements of AI-integrated English reading pedagogy. The findings show that AI outputs became useful when lecturers turned them into objects of critique. Students learned not only to use AI, but also to question its accuracy, neutrality, completeness, and relevance. Ethical issues also appeared across the data, including plagiarism, over-reliance, hidden AI use, fabricated sources, unclear disclosure, data privacy, and unequal access. These issues indicate that responsible AI use requires explicit classroom routines, transparent AI-use policies, and assessment systems that value process, evidence, originality, and reflection.

The study further concludes that sustainable quality education in AI-integrated reading classrooms depends on lecturer professional development and institutional support. Lecturers need AI literacy, prompt design skills, ethical reasoning, assessment competence, data awareness, and reflective pedagogical capacity. They also need fair workload recognition because responsible AI integration requires time for designing tasks, monitoring student use, verifying outputs, and revising assessment practices. This finding aligns with SDG 4, which emphasizes inclusive and equitable quality education, and SDG 8, which emphasizes decent work, professional growth, and sustainable working conditions. Sustainable AI pedagogy therefore requires not only classroom innovation, but also governance, policy clarity, professional learning communities, and institutional accountability.

Based on these findings, several recommendations are proposed. First, English lecturers should design AI-integrated reading tasks that follow a clear human-in-the-loop sequence: original text reading, AI-assisted support, student comparison, lecturer mediation, evidence-based revision, and reflective output. Second, reading worksheets and assignments should require students to show how they used AI, what they accepted or rejected from AI output, and what textual evidence supports their final interpretation. Third, assessment rubrics should include criteria for reading comprehension, inference, critical analysis, source evaluation, AI-use transparency, originality, and reflection. Fourth, institutions should develop formal AI-use guidelines that address permitted use, prohibited substitution, academic integrity, disclosure, privacy, bias awareness, and responsible data practices. Fifth, universities should provide continuous professional development on AI literacy, ethical governance, AI-aware assessment, prompt design, and sustainable workload management.

Future research should expand this inquiry through longitudinal and comparative studies. Longitudinal research can examine how human-in-the-loop

pedagogy influences students' reading comprehension, critical literacy, vocabulary development, inferential ability, metacognition, and autonomous reading over time. Comparative studies can investigate differences across institutional types, digital infrastructures, lecturer experience levels, and student proficiency groups. Future studies may also combine qualitative case study with quantitative learning analytics to examine how AI-supported reading practices affect measurable learning outcomes. Further research should also explore student perspectives, since learners' attitudes, dependency patterns, ethical awareness, and self-regulated reading strategies are central to the success of AI-integrated pedagogy. Finally, future research should examine how institutional AI policies, professional development models, and assessment systems can support sustainable quality education while preserving lecturer agency, student voice, critical inquiry, and humanistic values in English reading instruction.

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7. Author Declaration

- Confirm originality of work
- State no conflicts of interest