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GENERATIVE AI AND ESP WRITING INSTRUCTION IN A HIGH-CONTEXT ENGINEERING CULTURE: A CASE STUDY IN AN INDONESIAN MANUFACTURING INDUSTRY

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Abstract: The swift evolution of generative artificial intelligence (AI) has heightened the necessity to reevaluate writing instruction in English for Specific Purposes (ESP), especially within high context culture environments. This qualitative case study examines three interconnected dimensions of AI integration in genre-based writing instruction for English Specific Purposes (ESP) training within an Indonesian metal industry: the interpretation and application of AI by ESP Teachers in the design of genre-specific writing instruction, the utilization of AI by trainees in the creation of technical documents, and the adaptation of assessment methodologies in the high context culture environment. Data were gathered via comprehensive interviews with 20 managers in the manufacturing industry, classroom observations, and the examination of instructional artifacts. The results show that teachers mostly see AI as a way to help them make genre models and make sure that their teaching materials meet the needs of communication in the field due to the specific knowledge and practices in metal industry. This article also reveals how writing instruction in an ESP metal industry classroom unfolds when AI is integrated within a high-context cultural setting, illustrating the dynamic interplay between technological tools and culturally embedded communication norms. The finding indicates a framework through which the assessment of trainees' writing skill development can be effectively conducted within the context. This study enriches contemporary and empirical insights into AI-integrated genre-based English for Specific Purposes (ESP) instruction within the underrepresented context of the metal industry in a high-context culture.
Keywords: *generative AI; English for specific purposes; genre-based approach; assessment practices; high-context culture; metal manufacturing industry*.

INTRODUCTION

The Genre-Based Approach (GBA) is a popular way to help students get involved with specific genres in ESP teaching. Based on the idea that genre is social action, GBA stresses that professional texts are shaped by repeated communicative goals, audience expectations, and institutional contexts (Hafner et al., 2023; Hyland, 2003; Johns, 2008; Redmann, 2024). The genre approach was found to be beneficial in enhancing writing ability through the utilization of structured instructional phases and by catering to the contextual requirements of learners (Zhai & Razali, 2023). From this point of view, learning about genre is not only copying the forms of texts but also understanding how language choices are affected by social factors. Consequently, it raises questions about how genre knowledge is actually used in practice, especially when students can write texts that seem to fit the genre without really understanding the social and rhetorical processes that make them work.

As generative AI becomes more common in professional communication, it is starting to challenge beliefs in English for Specific Purposes (ESP). ESP is a field that tries to make sure that language teaching is relevant to the communicative needs of certain professional fields. Additionally, recent researches have stressed the importance of looking at AI as factor that affects classroom language instructions (Boeru, 2024; Deshen et al., 2026; Kaldaras et al., 2024; Kohnke, Moorhouse, & Zou, 2023; Liu & Fan, 2025; Santoso et al., 2025).

Instead of seeing AI as either naturally helpful or harmful, recent studies suggest that we should look at how teachers and students understand and use AI in the context of current teaching methods. In genre-based ESP settings, AI can be used to model standard structures, but it can also make it harder to make assumptions about who wrote something and how clear the assessment is. These tensions highlight the necessity of examining how teachers perceive AI in the context of genre-based pedagogy and how students interact with AI during professional text creation, without assuming uniform or deterministic outcomes. These dynamics have especially important effects in technical and professional settings, like the metal industry. In this field, safety procedures, project reports, complaint reports, and product descriptions are all types of writing that serve both operational and regulatory purposes as well as communication purposes. Cultural context also affects how AI is used in ESP learning environments. People often say that Indonesia is a high-context culture because the way people communicate there tends to focus on social harmony and not making mistakes. In professional training settings, these kinds of orientations may affect how students write and how they use AI to help them write. Therefore it is important to comprehend cultural differences and acknowledging the influence of culture on communication (Baires et al., 2022).

Despite the growing body of literature on AI in language education, empirical studies examining its integration within genre-based ESP instruction in high-context settings remain limited, particularly in non-Western professional contexts such as the Indonesian metal industry. While existing studies have extensively examined Generative AI integration in general English writing instruction and ESP pedagogy in academic settings, the intersection of Generative AI, ESP writing, and high-context industrial cultures remains critically underexplored in the literature. This gap is consequential, as the cultural and occupational specificities of such environments shape how both teachers and trainees engage with AI tools in ways that existing frameworks have yet to adequately address. To this end, the present study investigates how ESP teachers interpret and design genre-specific writing instruction with AI assistance, how professional trainees utilize AI, and how assessment practices must be rethought to preserve validity in the learning contexts. The findings are intended to offer practical insights for ESP practitioners, curriculum developers, and manufacturing employers working in comparable professional and cultural settings.

METHOD

This study employed a qualitative instrumental case study design to examine how Generative AI mediates genre-based ESP writing instruction within a single large manufacturing company in Indonesia, with case boundaries defined by twelve-week professional training program involving two ESP tutors and 20 purposively selected managers from diverse operational divisions including production, quality control, logistics, and human resources assigned by the company. Six managers were chosen for purposive sampling guided by the criterion of active participation in the training program, and data sufficiency was assessed through thematic saturation across multiple data sources. Data were collected through three complementary methods: semi-structured interviews lasting approximately 45–60 minutes, guided by core questions addressing AI use practices, writing challenges, and genre awareness; non-participant classroom observations across all training sessions totaling approximately 24 hours, focused on interactional patterns, trainee response behaviors, and observable AI engagement; and systematic artifact analysis encompassing tutor-prepared lesson plans, AI-generated model genres, trainee writing samples, and assignment feedback. All data were analyzed thematically through coding by two researchers, followed by collaborative categorization and theme formation aligned with the research questions, with discrepancies resolved through discussion until consensus was reached. Credibility was established through data source triangulation, peer debriefing, and member checking conducted with six trainees selected across proficiency levels. Given the high-context cultural setting, particular methodological attention was paid to power dynamics and face-preservation norms: informed consent was obtained through a voluntary written process independent of managerial oversight, observations were conducted in a non-evaluative capacity, and interview questions were framed indirectly to minimize social desirability bias and encourage candid disclosure without threatening participants' professional face. The study adheres to ethical research principles, including participant confidentiality, anonymization of company-specific information, and the right to withdraw at any point without consequence.

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RESULTS AND DISCUSSION

How ESP teachers interpret and utilize AI in designing GBA writing instruction

In practice, the instructional process unfolded across four iterative stages that are central to GBA pedagogy. In the first stage, *Building Knowledge of the Field*, the teachers drew on generative AI to expose learners to authentic workplace texts including technical reports, product knowledge, safety procedure documents, complaint report, and yearly reports prompting learners to identify contextual purposes and professional discourse patterns that are otherwise difficult to access in conventional ESP classrooms. Moving into the *Modelling of the Text* stage, the tutor strategically used AI-generated exemplars alongside real industry texts to guide learners in deconstructing genre-specific linguistic features, such as nominalization, passive voice constructions, and field-specific lexis, making the implicit conventions of engineering writing visible and discussable. The *Joint Construction* stage and in the *Independent Construction* stage, trainees produced their own genre texts.

Based on the research data, the teachers' use of AI did not emerge as part of an institutional plan or company technology policy, but rather as a personal initiative which evolves in tandem with professional needs, extensive experience in the ESP field, and the contextual demands of the metal industry. AI offers concrete opportunities to bridge technical knowledge gaps, improve work efficiency, and strengthen the relevance of learning.

The role of teachers' professional experience in shaping interpretations of AI

One of the teachers has been teaching ESP for seven years and knows that the quality of ESP instruction depends a lot on how accurate the genre is, how relevant the industry context is, and how close the material is to how people really communicate. This experience has changed the way the teachers think about AI. They now see it not just as a tool, but also as a partner in teaching, which can make the process of designing lessons better. This support the idea that EFL Teachers are expected to have topic expertise and to demonstrate proficiency in delivering content via AI tools, as well as to comprehend the ethical implications of utilizing such tools (Alshaie et al., 2025).

The teachers said in the interviews that before generative AI came along, making genre-based ESP materials for *Building Knowledge of The Field* and *Modeling of The Text* phases was often a long process that relied on getting real materials from partner companies or industries. Because most technical documents are confidential, teachers often encountered difficulties in accessing or modifying materials for use in learning (He et al., 2025; Wigati et al., 2020).

This situation often limits the teachers to adapting outdated or poorly contextualized documents. It directly impacts the quality of genre models and learning activities, which should imitate professional communication practices. It is within this framework that teachers interpret the presence of AI as a new opportunity (Kohnke et al., 2023b). AI is not only a technology that assists, but also pedagogical mechanisms which are able to continuously update learning resources without violating industry confidentiality.

AI as a solution to limited technical knowledge and industrial terminology

In the context of the metal industry, the genres used in professional communication are highly technical, such as product description, project progress report, maintenance procedures, until safety compliance statements. Clear and precise communication is essential in technical fields; engineers must employ accurate, clear, and correct technical vocabulary (Naqvi, 2025). The teacher admitted that even though she was an expert in ESP and GBA teaching, she still had trouble with the technical aspects of the metal industry, especially when it came to terms that changed quickly, production processes, and safety rules. Before the time of generative AI, these limits made her question whether the materials that had been prepared were really valid, current, and true to the technical challenges that trainees faced. The teacher says that AI helps keep skills in balance. This adds to the technical side that has been hard to get to in the past. Teachers can use AI to check terminology, quickly learn about industrial processes, and make accurate representations of technical genres without needing direct access to sensitive company documents. AI often gives teachers structural and linguistic insights that help them make sure that the model genres they make meet the professional communication needs of their students. This interpretation suggests that teachers' use of AI is more than just the application of technology. AI becomes collaborator (Juan et al., 2026) to find a strategy for expanding knowledge, increasing confidence in teaching technical content, and maintaining the academic quality of ESP instruction.

AI in needs analysis: Speeding up processes, deepening understanding

ESP is a language learning approach that is based on the learners' needs, and all decisions regarding teaching materials, learning methodologies, and the reasons for learning English are made accordingly (Li & Fu, 2021).

As a teacher who is accustomed to prioritizing needs analysis in each ESP activity, the Teacher views AI as a tool that enriches and accelerates the process of identifying trainees' needs. In practice, the teachers use AI to conduct initial explorations of the types of documents common in the metals industry, the variety of technical genres managers might need, and common language challenges that arise in the sector.

AI lets the teachers do some preliminary mapping before meeting with people from the company. They already have a better idea of what kinds of texts are good for analysis, what needs to be changed, and which language skills are most important when they talk to HR and department representatives. This process makes needs analysis more organized, efficient, and based on facts. AI acts like a simulator for industrial settings. AI helps the teachers learn about work culture, important documents, and technical communication styles without having to look at sensitive company information. The teachers stress that AI's role at this point is very important for deciding how genre-based learning designs will work.

AI in lesson plan development: Efficiency, coherence, and genre appropriateness

Lesson development is a crucial part of the teaching process (Donath et al., 2023). At the development stage of the lesson plan, the teachers used AI as a primary tool to structure learning flows, determine the stages of GBA. GBA consists of building knowledge, modeling, joint construction, independent construction (Johns, 2008). AI helps them map the genres to be studied. The teachers revealed that AI makes the planning process more efficient because it can generate various alternative activity designs, suggest approaches to task differentiation, and provide examples of evaluation rubrics that can be used or adapted.

As AI allows teachers to test multiple pedagogical scenarios before deciding on a final design (Kasneci et al., 2023). In this study, the teachers can ask AI to generate lesson plans with varying focuses: one version emphasizes genre structure, another linguistic features, or another industry contextualization. This flexibility was not available before the era of generative AI. This iterative process makes the final lesson plan become more coherent, mature, and responsive to the needs of trainees.

AI in material development: From "authentic but restricted" to "authentic but safe"

One of the most significant findings of recent studies related AI is how AI is changing the way teachers learning materials (Bondi, 2025; Ghiasvand, 2024). Before using AI, teachers relied on authentic documents obtained from partner companies (Guiyu & Yang, 2016). However, these documents were often confidential or could not be shared in their entirety for classroom purposes. Editing or de-identification to documents is time consuming and often reduces the richness of context.

AI allows teachers to make "real material with changed data." Teachers can make texts that look a lot like real documents from the metal industry, including the way they are set up, the words they use, and the way they talk to each other, but they do not have any private information in them. There are two main benefits to this approach: teachers keep company secrets, and trainees keep learning with texts that are relevant and real. The teachers said that it would be almost impossible to make texts like these that are very real without AI in a short amount of time.

From a theoretical perspective, this finding extends established principles of ESP materials development by positioning generative AI as a new mediating tool for achieving authenticity without breaching industrial confidentiality. Tomlinson (2016) emphasizes that effective materials should be authentic, context-sensitive, and capable of engaging learners with real-world language use; however, access to such materials has traditionally been constrained in highly regulated industrial environments. This study's use of AI shows how "authentic but safe" materials can be made in a systematic way, which lets teachers keep the integrity of the genre while getting rid of ethical and legal risks. In this regard, AI does not replace pedagogical judgment but serves as an enabling tool that enhances the teacher's ability to implement Genre-Based Approach principles in contexts of limited access and contextual sensitivity.

AI in genre model development

Genre models are a key component of GBA (Hyland, 2003). Before using AI, teachers would collect several examples of technical documents and then select the most representative ones to analyze with trainees. This process took a long time and often led to materials that were not the same from

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one session to the next. With AI, teachers can make very accurate genre models, keep genre features the same, and change them easily for the next session. Because the trainees are managers with different backgrounds, the teachers said that AI can change the text's difficulty. For instance, the teachers could have AI make different versions of a project report, such as one that focuses on numbers, one that focuses on stories, or one that focuses on risk analysis. This makes discussions in the classroom more interesting and helps trainees understand genre as a social practice better.

AI in task development for joint construction and independent construction of the texts

One of the more practically findings of this study is how generative AI helped tutors design writing tasks that genuinely reflect the communicative realities of the manufacturing workplace, it was a challenge that sits at the very heart of effective GBA writing instruction. In GBA, the quality of tasks matters enormously. Tasks are not simply exercises to keep learners busy; they are the primary vehicle through which learners come to understand what a genre does, who it speaks to, and why it is written the way it is. Without tasks that authentically represent the target genre in use, the progression from *Joint Construction* to *Independent Construction* risks becoming disconnected from the very professional context that gives ESP writing its meaning and purpose. This is where the tutors in this study found generative AI to be genuinely transformative. Rather than relying on generic writing prompts that bore little resemblance to actual industry communication, tutors were able to use AI to co-construct scenarios rooted in the daily realities of metal manufacturing such as equipment failure reports, quality complaint letters, and vendor correspondence, texts that carry recognizable genre identities and demand the kind of precise, professional language that engineers are expected to produce on the job. The teachers mentioned that the difficulties they had previously faced in the manufacturing area,they admitted that designing technically credible scenarios was often frustrating when their own familiarity with manufacturing processes and terminology was limited, resulting in tasks that trainees found unconvincing or irrelevant. Generative AI helped close that gap in a way that was both practical and pedagogically sound, producing task prompts that were technically plausible, appropriately complex, and carefully constructed to mirror the linguistic demands including register, genre structure, and field-specific lexis that learners would encounter in real workplace writing situations. This finding speaks directly to the argument made by Ulla and Winitkun (2017) that ESP curriculum design must be anchored in learners' actual linguistic needs, and it adds a new dimension to that argument by showing how AI can make needs-responsive task design more accessible to tutors who work outside their own domain expertise. Importantly, this also resonates with the high-context nature of the engineering culture in which this study was situated. It is a context where professional writing is never purely a linguistic act, but one deeply embedded in institutional roles, technical accountability, and workplace relationships.

Time and energy efficiency: Determining factors for AI usage

The teachers, in the interview, emphasized that the use of AI has significantly reduced the preparation workload. This support a prior research mentioning that of AI generative as a teacher assistant can reduce workload and prevent burnout (Hashem et al., 2023). Before AI, the teachers would need days to prepare for a single GBA-based writing learning cycle. After utilizing AI, that time can be cut by more than half. Because they are efficient, they can spend more time on other things, like giving feedback, watching the trainee write, or coming up with real assessments. But they also stressed that this efficiency is not just for convenience; it is also important for the long-term health of the profession. In a fast-paced work environment, being able to quickly meet the needs of the industry is an important skill that can be learned through working with AI in the classroom.

The teachers in the present study demonstrated a pragmatic orientation toward AI tools, treating them primarily as resources for scaffolding genre awareness and language input—a pattern that resonates with Elmotri et al.'s (2025) findings on Saudi ESP instructors who similarly adopted ChatGPT as a supplementary pedagogical instrument rather than a replacement for teacher-led instruction. Both contexts reveal that ESP practitioners in EFL settings tend to position AI within an additive rather than transformative framework, integrating it into established routines while maintaining centralized control over curricular decision-making. However, a notable distinction emerges in the degree of institutional endorsement: whereas Elmotri et al. reported that Saudi instructors operated within relatively structured, top-down directives regarding AI adoption, the teachers in the current study navigated a more ambiguous policy landscape, requiring them

to construct individual rationales for AI use largely independent of formal guidance. This divergence suggests that the interpretive frameworks teachers bring to AI are shaped not only by pedagogical beliefs but also by the organizational cultures and policy climates within which they work, underscoring the need for context-sensitive professional development that addresses both the technical and institutional dimensions of AI integration in ESP.

How trainees use AI when faced with technical text production in high context culture environment.

The utilization of AI text generators surpassed traditional methods of mentor text development, which are sometimes laborious and less accustomed to the specific requirements of particular learners. Utilizing GenAI technology, teachers may rapidly produce mentor texts across several genres and include them into genre-based education (de Oliveira & dos Santos, 2025). In the context of English for Specific Purposes (ESP) training in the Indonesian metal industry, the trainees, all of whom are managers, have a unique relationship with artificial intelligence. The research findings demonstrate that trainees' utilization of AI extends beyond the classroom, becoming an essential component of their daily professional communication practices. This is in line with global trends that show that more and more workers are using generative technologies to meet the needs of quick, accurate communication across cultural and geographic lines.

The social position of managers and its implications for AI use

Indonesia is known as one of the high context culture societies. In high-context societies, communication predominantly depends on nonverbal signals, contextual understanding, shared experiences, and social conventions to transmit information. The language is relatively succinct, with meanings inferred from the context and background, necessitating comprehension by the listener (Gao, 2024).

In high-context cultures such as Indonesia, professional communication in engineering and manufacturing environments might be governed by three interrelated sociocultural mechanisms: face preservation, indirect communication, and hierarchical respect (Hall a& Hall, 2020). Face preservation manifests through the avoidance of direct criticism and explicit error attribution, realized linguistically through hedging, passive constructions, and euphemistic framing. Indirect communication requires that meaning be interpreted through contextual cues and shared institutional knowledge rather than explicit textual content, posing significant challenges for ESP writing instruction that conventionally privileges directness and clarity as markers of professional competence. Hierarchical respect further constrains junior staff from openly challenging senior engineers, reinforcing patterns of deference that shape both the content and tone of professional written communication. In Indonesian organizational culture, it is influenced by the communication patterns. Managers are positioned high in the social hierarchy. Managers are not only department leaders but are often viewed as figures who must maintain authority, composure, and unquestioned competence. The social status shapes how people interact during training (Li et al, 2025). Unlike trainees at the operational or staff level, managers have more freedom to use personal devices, including mobile phones, during training sessions.

Not only does company policy allow employees to keep carrying and using their phones, but it also shows respect for the duties and urgency of their work. The teachers know that any manager could get an important call from central leadership or another department, which would make it impossible to enforce a "no phones in class" rule. In this situation, it becomes hard to keep an eye on or control AI. This situation creates a gray area that lets managers use AI without the teachers' knowledge when they are doing tasks that were assigned during *Joint Construction* and *Independent Construction of The Texts* phases. Teachers often see trainees typing quickly on their phones and then sending back their writing results that look very neat, organized, and better than when they were spoken. However, the "face-preserving" norms inherent in high-context cultures (Lamino & Diaz, 2024) prevent the teachers from directly asking the trainees whether the text is their own work or the result of AI modification. In such cultures, questioning the abilities of learners in higher positions can be perceived as a threat to their dignity and can disrupt professional relationships (Hall & Hall, 2020).

Managers' AI usage patterns

Researches demonstrate that the process of learning to write in English for Specific Purposes is distinctively difficult, characterized by the challenge of balancing complex ideas with linguistic norms, limited authentic practice, and persistent teacher dependence (Mohamed et al., 2025). However, interviews in this study showed that most managers use AI in their daily work,

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which requires intensive communication in English. They frequently use AI to write emails to colleagues in overseas branches, compile project reports, write clarifications or responses to quality issues, and prepare presentations in English. This experience using AI in professional contexts carries over into ESP training. Managers viewed AI as a “linguistic assistant” capable of helping them find technical phrases, correct grammar, and speed up text production without having to manually consult references. This support the idea that the quality of the text generated by AI writing tools that are broadly available, such as ChatGPT, is frequently exceptional, particularly when the text is produced in highly standardize genres, as is the case with a significant amount of text produced in specialized domains (Catenaccio, 2025).

They said that ESP training helped them understand how some genres are put together, but AI helped them do those genres more accurately and quickly. Some trainees even said they "learned from AI," especially when it gave them feedback in the form of better word combinations or more natural sentence structures that fit professional registers. In certain assignments, educators observed that the written work of trainees exhibited linguistic attributes that exceeded their oral performance. For instance, trainees who usually looked for words and used simple sentence structures when they talked in class were suddenly able to write complex and coherent texts while they worked on their homework. This situation supports researches stated that although AI has transformational potential, its broad use in education has generated concerns about the role of Teachers and the possibility of clandestine AI-assisted academic work (Zhai & N

e The teachers, on the other hand, noticed this d difference and thought that AI might have been i involved, but they couldn't confirm their suspicions b because of the limits of direct questioning. In a high- c context culture, this is one of the biggest problems t with performance-based assessment in the age of g AI.

o Despite indications of dependency, not all AI use h has negative consequences (Naila et al., 2025). I Interviews showed that some trainees said that their interactions with AI helped them understand 2 English grammar that they had trouble with before. 0 They learned new words, technical terms, and how 2 to write more professionally. For them, AI is more 5 than just a way to get things done; It is also a way to) learn that they can use whenever they want.

Some trainees said that AI was a "model" that helped them understand how to structure technical text. For instance, AI helped them see certain sentence patterns that often show up in business emails, which made them feel more sure of themselves when writing back to messages in English. This fact supports the idea that in contrast to technologies that merely retrieve or analyse pre-existing information, generative AI produces original outputs that mimic human communication (Wang & Erdenbold,2025)

However, this tendency raises questions about the extent to which trainees truly understand the text-building process or simply rely on AI as a quick generator as sophisticated textual and multi-modal content can be generated by generative AI and made readily accessible to students. Overreliance can create a false sense of competence, where trainees seem to be able to write well but can not explain or make the text without the help of AI.

Pedagogical tension: When AI interrupts the teacher–trainee relationship

Tensions or dilemmas in the context of classrooms typically refer to a tense state or circumstance brought on by a number of opposing or even contradicting societal or pedagogical demands that either originate inside the classroom or outside of it (Dong et al., 2017). Moreover, students sharing can improve teachers' understanding of AI integration, providing valuable insights for teaching (Zhang & Hyland, 2025).

One of the most important times that shows how teachers, trainees, and AI work together was in one of *Building Knowledge* phases. A general manager talks to the teacher about a difference in how the phrases "have a meeting" and "do a meeting" are used. The general manager said that he had asked the AI and got a different answer than what the teacher said. This made things a little tense for a short time because the AI was seen as a "linguistic authority" that was competing with the teacher. But in the end, it was the teacher's teaching skills that made the difference. The teacher went into more detail about the differences in meaning and collocations that apply to English, including how naturalness and idiomatic language use fit into the picture. The trainees finally agreed with this explanation. This moment showed that the AI could give information, but it could not teach in a way that took into account the trainees' learning style, cultural background, and needs for skill development. This incident not only showed how AI can cause problems, but it also showed that the teacher is not an absolute source of knowledge, but

rather a facilitator who can provide linguistic reasoning that the AI could not. Moreover, the accuracy of AI feedback can be unstable and potentially misleading (Lingard, 2023).

How assessments can be redesigned to remain valid amidst the increasingly inevitable use of AI

An assessment of foreign language instruction serves two primary purposes: to evaluate the degree to which students have attained the objectives of specific learning programs, thereby facilitating summative evaluations; and to offer instructional feedback that aids in student advancement (Rachmawati et al., 2023). The integration of AI into professional ESP learning has significant implications for assessment practices. This increased reliance has broadened the duties of the teachers and highlighted the necessity for selective and ethical AI integration (Bakić-Miri et al., 2023). The evaluation methods used to assess the writing abilities of EFL students are essential indicators of their linguistic development (Apridayani et al., 2024).

AI innovations bring both benefits and challenges in world language instruction (Lu et al.,2026). AI is a useful tool that gives trainees more exposure to technical genres. But uncontrolled use of it could make it harder to see how good trainees really are. This challenge is even harder for managers in the metal industry because company policies do not clearly say what AI can and can't do, and high-context cultural norms often make it hard to get direct clarification.

Evaluating students' text is an essential component of language acquisition assessment, especially in English as a foreign language (EFL) settings, where it acts as a crucial indicator of student writing competency (Yavuz et al., 2025). One of the biggest problems is making sure that performance is real. Managers were allowed to bring their mobile phones to training because they might get important calls from their bosses or divisions. This is a normal part of the industry's hierarchical structure, so the teachers did not have the power to limit digital access. In these conditions, they probably would not be able to tell if the written assignments that were turned in were done by the trainees or by AI. There were times when the texts that were turned in were very well-organized, clear, and technical, which did not always match the speaking skills that some trainees showed during class discussions. They had doubts, but they were not in a good place to talk to the trainees directly. In Indonesia, especially in big industrial areas, managers are seen as having symbolic power. People may see directly confronting them as a threat to harmony, questioning their credibility, and socially damaging to face. So, the teachers have to find a balance between making sure that the tests are fair and being aware of the cultural norms that are important in their area.

Designing authentic assessments that reflect the world of work

AI cannot be completely banned, but the ability to use AI critically, consciously, and responsibly can be part of the measured capabilities. In the face of this ecological shift, authentic assessment is the most relevant approach. Authenticity in evaluation has long been acknowledged as a crucial issue, signifying the aspiration to link learning with the intricacies of professional and civic existence (Kickbusch et al., 2025). As a principle, authentic assessment assesses performance in contexts that mimic real-life professional situations. For metal industry managers, assessments should assess their ability to produce technical texts that reflect their roles and responsibilities.

In this training exercise, the teachers start to include these real-life elements by having trainees write texts based on their own experiences. For instance, a production manager might be asked to write a daily report on how long machines were down, and a quality control manager might be asked to write a response to a complaint about a product defect. This design keeps the possibility of AI, but the fact that the content is related to the trainees' work experiences makes it easier for the teachers to tell if the text is based on real experiences or a generic AI formulation. This situation also makes it possible to check things across the board. Instead of checking each trainee's work individually, the teachers check it as a group. The teachers are indirectly asking if the trainee's written scenario, figures, or procedures match up with what really happened. This mechanism not only helps limit AI interference, but it also protects the trainee's dignity by making sure that clarification happens in a professional setting, not in an exam or interrogation. This method works very well in a high context culture. Trainees do not feel rushed, and teachers can tell if the texts are real examples of both trainees' language skills and their understanding of the industrial processes they lead. This method also strengthens the idea that assessment is not an audit, but a professional conversation that helps both parties get better at what they do.

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Spontaneous speaking as a validation mechanism

Regarding evaluation, it is common that the act of overseeing and delivering constructive criticism on student writing has difficulties regarding time, effort, and subjectivity (Song & Song, 2023). This difficulty increases in a class with a high context culture. Therefore, in addition to work-based written assignments, the teachers also utilize spontaneous speaking as a way to validate trainees' abilities more personally as feedback. By asking trainees to spontaneously explain their writing, Teachers can assess the consistency between their written and spoken language skills. In many cases, a significant difference between these two abilities signals significant AI intervention in the writing task. This model is implemented subtly, without giving the impression that the teacher is testing authenticity. An essential aspect of student feedback literacy is the ability to value feedback and acknowledge its various forms, beyond merely written comments on completed assignments (Carless & Boud, 2018).

The teachers usually start the conversation with questions that are easy to answer, like "Can you tell us how this process works in your production line?" or "What is your reasoning for choosing this step in complaint handling?" These kinds of questions let trainees talk like professionals instead of like students taking a test. When trainees can explain things clearly, logically, and consistently with their writing, teachers can better understand what they can really do. On the other hand, when trainees seem to have trouble explaining their own writing, teachers know that AI may have helped with some parts. But teachers do not immediately point out the difference; instead, they go back to the idea of saving face. Instead, the teachers follow up with clarification or enrichment during the lesson, not as criticism but as a direct feedback. Direct feedback is more helpful rather than delayed feedback in teaching ESP writing class (Mauludin et al., 2025). In this way, the validity of the assessment is enhanced without creating a tense atmosphere.

The truth about what is actually occurring and/or why it is not occurring in cross-cultural interactions can go unnoticed if one does not have a thorough understanding of culture (Bakić-Mirić et al., 2023). In a high-context culture, interpersonal relationships, harmony, and respect play a much greater role than simply transmitting information. It is necessary for a communicator to have a deeper comprehension of the non-verbal communication of others, particularly in situations where other individuals are unable to articulate their thoughts and emotions (Sun et al., 2023).

The trainees are managers accustomed to being respected by their subordinates, so providing overly direct feedback could be perceived as diminishing their authority. Feedback systems are often difficult to manage, and the frustrations of teachers and students can limit the learning potential of feedback (Carless & Winstone, 2023). So, the teachers give feedback in a way that is more like a conversation and not condescending, while still keeping the trainees' professional status. Instead of saying, "You're using this structure wrong," the teachers use strategies like asking for other options, like, "If we look at the safety procedure's context, is this sentence structure clear enough for a new client?" This way, the teachers put the trainees in charge of making decisions, not just correcting them. This approach not only makes the trainees feel more at ease, but it also helps them see where they can improve without feeling embarrassed. In some cases, corrective talks can even lead to more in-depth talks. When one general manager asked the AI about the difference between "have a meeting" and "do a meeting," the teachers were able to change the subject to English collocation. This confrontation actually creates opportunities for deeper learning and shows how important Teachers' pedagogical position is, even as AI becomes a new source of information. So, feedback is not just a way to judge someone; it is also a way for the teacher and student to talk about what they mean and how much they trust each other. In a setting defined by high-context norms, this form of feedback serves as an essential method for preserving educational quality while ensuring the stability of social relationships.

Toward an assessment model for AI-era in ESP writing instruction

While AI has blurred the lines between authentic skills and the outcomes of technological interventions, assessment in ESP learning should not revert to a technology-averse paradigm, besides learners often exhibit scepticism toward feedback provided by AI in comparison to feedback provided by human teachers (Le et al., 2025). Instead, assessments should be designed to assess how learners integrate AI ethically, effectively, and appropriately within their professional contexts. AI also should assist human teachers, not replace them. A mixed learning approach that blends professional guidance with AI-driven instruction can optimize learning outcomes (Kalimbetova, 2025).

In the context of training managers in the metal industry for this study, the assessment model that started to take shape had three main parts. First, the test looks at how well trainees did their jobs, not

just how well they did language exercises. Second, the test checks how well trainees can explain and defend their texts in both casual and formal conversations. Third, the assessment allows for social evaluation, which is when a group confirms something together as a more accurate way to check than checking it alone. This method is not only in line with Indonesian cultural traits, but it also fits with the modern work environment that has become more automated. Professional language skills are no longer just being able to write on our own. Now they also include being able to think critically, choose the right information, and make sure that the message, context, and industry goals are all in line with each other. Consequently, genuine, adaptable, and socially aware assessment design is an essential prerequisite for maintaining the relevance of ESP learning in the age of AI predominance.

The results of this study indicate that legitimate ESP assessment in AI-integrated, high-context professional environments must be based on the following interconnected principles: First, authenticity assessment tasks in the workplace should be directly tied to the trainees' actual job duties and responsibilities. This will make sure that the results show what they really know instead of what AI-generated language would say. Second, trainees' written work should be accompanied by spontaneous oral explanations so that teachers can check for consistency between what they wrote and what they understood. Third, group-based discussion and peer confirmation can serve as culturally suitable cross-checking methods that diminish dependence on direct confrontation while bolstering the credibility of assessments. Fourth, feedback and validation processes that are culturally sensitive and protect people's faces must follow the rules of high-context cultures. This means that assessment should be seen as a professional conversation, not as spying or questioning. Fifth, assessment should not concentrate on prohibiting AI usage, but rather on assessing learners' capacity to utilize AI transparently, critically, and responsibly within professional communication practices. These principles constitute an assessment framework that redefines validity in English for Specific Purposes (ESP) not as the exclusion of artificial intelligence (AI), but as the congruence among language proficiency, professional judgment, cultural standards, and ethical AI utilization.

This study responds to a gap that existing ESP research has largely left unaddressed: how professional writing is learned and practiced in high-context industrial workplaces, particularly when Generative AI enters the instructional equation. Most AI-assisted writing studies have been conducted with university students in Western or academic settings, leaving the experiences of working engineers and managers, who write under real institutional pressure, cultural obligation, and hierarchical constraint, largely invisible in the literature. The Indonesian manufacturing context examined here is not simply another non-Western case study; it carries a distinctive layering of workplace hierarchy, face-preserving communication norms, and international engineering writing standards that together create writing challenges no existing framework has fully theorized. To address this, the study highlights the concept of AI as pedagogical mediator, drawing on Vygotsky's (1978) sociocultural theory, to reposition Generative AI as a culturally sensitive scaffold that helps writers navigate between genre expectations and the relational demands embedded in their professional context, it is an extension that Genre-Based Approaches alone cannot offer. The methodological choices made in this study, including face-preserving data collection strategies and horizontal verification, further reflect a commitment to researching writing not as an abstract skill but as a deeply human, culturally situated practice.

The writing skill improvement

At the end of the program, there was a clear improvement in skills. The teachers saw that the trainees' writing skills were getting better, both in terms of understanding genre structures and in their general use of English. Trainees grew more confident speaking English in class discussions, were able to explain the technical context of their work more clearly, and showed that they understood technical terms that they had never heard before. The use of AI helped them learn more quickly, not just complete assignments (Crosthwaite & Sun; 2025; Dai et al., 2023)

The writing skill improvement demonstrates that the use of AI does not necessarily hinder the learning process (Elmotri et al.,2025). On the contrary, for managerial-level trainees with heavy workloads and limited time, AI can be an effective tool to accelerate access to relevant linguistic knowledge (Darvishi et al., 2024; Jiang, 2025; You & You, 2026).

The current findings align closely with You and You's (2026) argument that AI tools hold particular promise for genre model development in writing

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instruction, especially in contexts where authentic target-genre texts are scarce or inaccessible to learners. Teachers in this study leveraged AI to generate illustrative genre exemplars, annotate structural conventions, and provide learners with accessible metalinguistic commentary—functions that You and You identify as central to AI-assisted genre pedagogy. This convergence affirms that AI's capacity to produce on-demand, customizable genre models can meaningfully extend the reach of genre-based approaches beyond what traditional textbook materials afford. Nonetheless, the present study adds nuance to You and You's optimism by highlighting that the pedagogical value of AI-generated genre models is contingent upon the teacher's ability to critically evaluate and contextualize such outputs.

CONCLUSION

This study demonstrates that the integration of generative AI into genre-based writing for English for Specific Purposes (ESP) instruction within the metal industry context not only alters instructional resources and text models but also redefines the implementation, mediation, and assessment of genre knowledge in professional learning environments. The teachers see AI as a way to help them deal with practical and language issues and make it easier to make learning materials that are useful in the real world. Before it is used in the classroom, it shows that the teacher's job is changing from giving information to organizing and mediating it. They are now in charge of making sure that AI-generated materials follow the rules of their genre and the goals of professional communication.

From the trainees' perspective, particularly managers accustomed to elevated standards of precision and productivity, AI is intricately associated with their daily work practices. AI is a standard for making technical documents, which makes it harder and harder to tell the difference between content made by people and content made by technology. In a high-context cultural setting, this problem is made worse because teachers may not want to openly question or disagree with the trainees' language production. At the same time, trainees get to learn more professional vocabulary, discourse structures, and genre conventions by interacting with AI on a regular basis. This indicates that AI-mediated engagement can facilitate language acquisition when executed appropriately. These findings collectively underscore the imperative to reconceptualize assessment methodologies in English for Specific Purposes (ESP) for the age of artificial intelligence. Assessment should not only focus on the final written products, but also on real performance through tasks based on the process, workplace simulations based on real situations, and opportunities for interactional verification. Incorporating drafting processes, reflective analyses of language selections, peer validation, and impromptu oral or written assignments centered on comprehension and communicative purpose can enhance the validity of assessments. It is imperative that these practices are conducted with cultural sensitivity, particularly in high-context cultures, while maintaining clear standards of accountability.

These findings suggest that the future of English for Specific Purposes (ESP) in the AI era will depend less on the development of technological tools and more on the capacity of pedagogical frameworks to incorporate AI as a socio-pedagogical mediator.

This study comes with several limitations worth acknowledging. The single-case design, while rich in contextual depth, limits the generalizability of findings to other ESP or industry settings. Manager interviews may have been shaped by social desirability bias, given the hierarchical nature of the workplace, and cultural constraints at the research site made it difficult to directly observe how AI was used during writing tasks. These limitations, however, open meaningful directions for future research to explore.

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