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ISSUES

Regulating AI Translation Tools Across the Four Strands: EFL Teachers' Practices and Rationales

Aldha Williyan[1], Neni Marlina[1]

[1] English Education Department, Universitas Siliwangi, Tasikmalaya

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The rapid integration of AI-powered translation tools into EFL classrooms has introduced pedagogical challenges for teachers to maintain meaningful language learning across different instructional purposes. In this study, the term AI translation tools refers to digital tools that support translation, paraphrasing, or multilingual meaning-making in language learning contexts. Grounded in Four Strands framework, this qualitative multiple-case study explores how tertiary-level EFL teachers regulate students' use of AI translation tools, the pedagogical rationales underlying their decisions, and the challenges they encounter in practice. Data were collected through semi-structured interviews and focus group discussions with ten EFL teachers. They were then analysed using a theory-informed thematic analysis with a hybrid deductive-inductive approach. The Four Strands framework informed the main analytical categories, while strand-specific subthemes were developed iteratively from the data. The findings reveal strand-sensitive regulation of AI translation tools. Teachers tended to allow selective use of AI translation in meaning-focused input to support comprehension, imposed conditional and phase-sensitive restrictions in meaning-focused output to preserve learner ownership, tightly controlled or analytically reframed AI use in language-focused learning to maintain cognitive engagement, and consistently prohibited AI translation in fluency development to protect automaticity and processing speed. Teachers' regulatory practices were shaped by ongoing tensions between access to meaning and learner dependency, pedagogical support and learner autonomy, and task efficiency and learning depth. The study proposes a strand-based, pedagogically principled model for regulating AI translation in EFL instruction.

1. Introduction

Teaching English as a foreign language is a complex pedagogical endeavour shaped by multiple interacting variables. EFL teachers are required to make ongoing instructional decisions related to input selection, opportunities for output, attention to linguistic form, and the development of fluency (Xu & Li, 2022; Yenkimaleki & van Heuven, 2023). They also have to respond to learners' diverse proficiency levels and learning needs, as well as classroom constraints (Gerfanova et al., 2025). These challenges require teachers to balance competing instructional priorities in order to support learners' gradual development toward fluent and effective English use.

To address this complexity, Paul Nation's (2007) Four Strands framework has long been recognized as a foundational model for second and foreign language curriculum design (Lan, 2023; Razman et al., 2022). The framework proposes that effective language learning depends on a balanced integration of meaning-focused input, meaning-focused output, language-focused learning, and fluency development (Nation, 2007). Each strand contributes a distinct yet complementary function, ensuring that learners receive comprehensible input, engage in meaningful language use, attend explicitly to linguistic features, and develop automaticity through repeated practice (Rahmawati et al., 2025; Yeo & Newton, 2025). For decades, this framework has provided EFL teachers with a principled solution for organizing instruction, planning curricula, and making pedagogically informed classroom decisions (Nation & Macalister, 2020; Nation & Yamamoto, 2012). In other words, the Four Strands framework offers teachers a coherent approach to language teaching.

However, the contemporary EFL teaching context has become even more challenging with the rapid emergence of AI-powered translation tools. Google Translate, DeepL, Claude, and ChatGPT are now widely accessible, increasingly accurate, and deeply embedded in students' everyday academic practices (Dinh, 2025; Suhardiman et al., 2025). In this study, the term *AI translation tools* is used in a functional and pedagogical sense, not in a technical sense, to refer to digital tools that support translation, paraphrasing, or multilingual meaning-making in language learning contexts. This framing is used because the study focuses on how such tools are pedagogically used and regulated in EFL classrooms. AI translation tools are not just occasional aides, but EFL learners routinely use them to support their comprehension, written production, and task completion (Kruk & Kałużna, 2024; Polakova & Klimova, 2023). This widespread use directly affects the principles underlying the Four Strands framework.

As a result, EFL teachers are now required to think more deeply about how they can manage AI translation tools to effectively implement all four strands of language-learning activities. These tools may function as scaffolding to support learners' access to meaning and participation in tasks (Shafiee Rad, 2025; Wang et al., 2025). However, excessive or unregulated reliance on AI translation risks reducing learners' active engagement, limiting opportunities for productive struggle, and weakening attention to form and fluency development (Almusharraf & Bailey, 2023; Murtisari et al., 2024). The central challenge for teachers, therefore, is not whether AI translation tools should be used, but how they can be regulated in ways that preserve meaningful, active, and comprehensive language learning across the four strands of activities.

This highlights the importance of examining how EFL teachers navigate the use of AI translation tools in their instructional practices. Despite the growing presence of AI in language education, existing research has largely focused on general attitudes toward AI (AlTwijri & Alghizzi, 2024; Kim et al., 2025; Mansoor et al., 2025) or on its use in isolated skills such as writing or translation (Alharbi, 2023; Crompton et al., 2024; Song & Song, 2023). What remains underexplored is how teachers regulate AI translation tools across different types of learning activities, and how such regulation aligns with the distinct pedagogical goals of each strand. Moreover, there is limited empirical insight into teachers' rationales for their decisions or the challenges and tensions they encounter when attempting to balance learning effectiveness with technological affordances. Responding to this gap, the present study seeks to explore EFL teachers' regulation of AI translation tools through the lens of Nation's (2007) Four Strands framework. Specifically, the study investigates:

1. How do EFL teachers regulate students' use of AI translation tools across the four strands of language-learning activities?
2. What pedagogical rationales underpin EFL teachers' regulation of AI translation tools within each strand?
3. What challenges and tensions do EFL teachers encounter when regulating AI translation use across the four strands of language-learning activities?

By foregrounding teachers' decision-making within an established pedagogical framework, this study aims to bridge long-standing principles of language teaching with the realities of AI-mediated learning. The findings of this study are expected to contribute to EFL pedagogy by offering a nuanced, strand-sensitive understanding of AI translation regulation in classroom practice. Such insights may inform teacher education, curriculum design, and policy development by supporting more principled and contextually responsive integration of AI translation tools in English language teaching.

2. Literature review

2.1. The Four Strands framework in EFL pedagogy

Nation's (2007) Four Strands framework is a principled model that conceptualizes effective learning as a balanced integration of meaning-focused input, meaning-focused output, language-focused learning, and fluency development (Nation, 2007; Nation & Yamamoto, 2012; Newton, 2024). As shown in Figure 1, each strand represents a distinct learning condition with specific pedagogical goals, from exposure to comprehensible input and meaningful production to explicit focus on form and the development of automaticity through repeated practice. Central to the framework is the

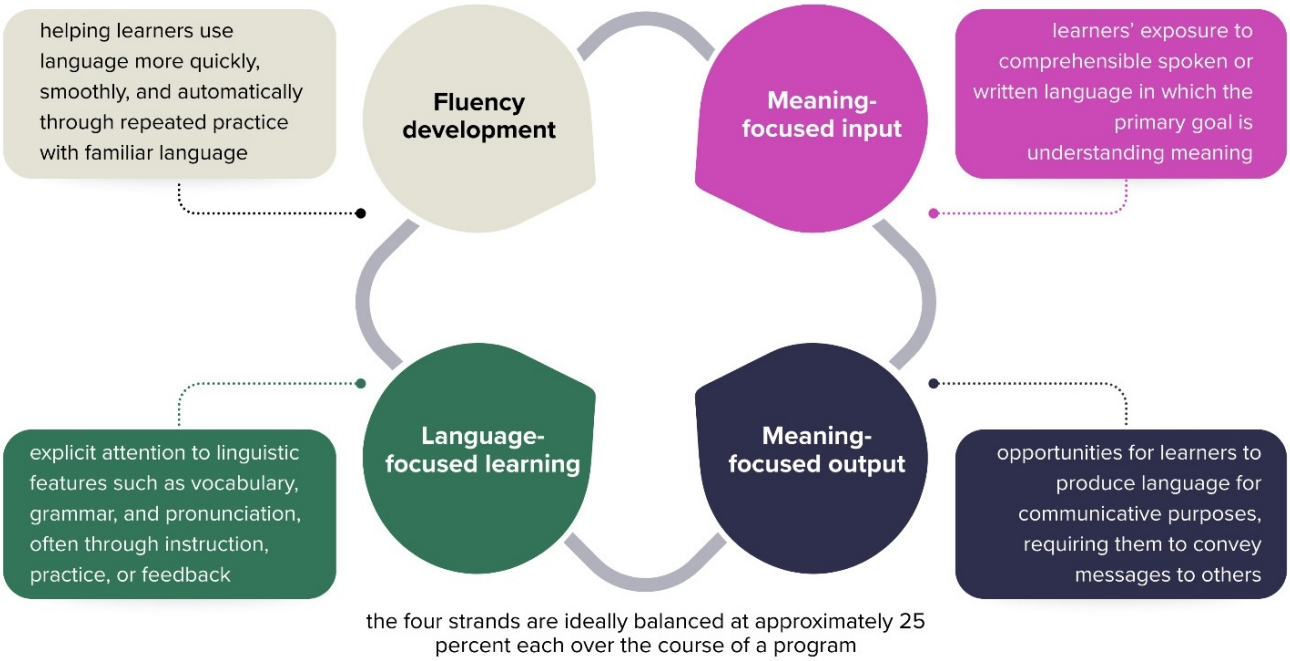

Figure 1. Nation's Four Strands framework and its balanced contribution to language learning (Nation, 2007).

principle of balance, whereby each strand receives roughly equal attention throughout a programme rather than within individual lessons (Lan, 2023; Nation & Macalister, 2020), making it widely used in curriculum design, materials development, and EFL classroom instruction.

Beyond its curricular role, the Four Strands framework emphasizes alignment between instructional activities and learning purposes. Each strand involves distinct expectations for learner engagement, task design, and assessment, making the framework useful for analysing instructional decision-making and regulation (Nation & Macalister, 2020; Nation & Yamamoto, 2012). Previous studies have shown its value in identifying instructional imbalances and tensions between pedagogical goals and classroom practice (Rahmawati et al., 2025; Yeo & Newton, 2025). However, as the framework predates the widespread use of AI translation tools, questions remain about how its principles of balance and intentionality function in AI-mediated EFL classrooms, underscoring the need to examine how established pedagogical frameworks adapt to emerging technologies.

2.2. Previous studies on AI translation tools in EFL contexts

The increasing availability and accuracy of AI-powered translation tools have attracted growing scholarly attention in EFL research. Numerous studies have documented that learners already extensively use tools such as Google Translate, DeepL, and more recently ChatGPT to support academic reading, writing, and task completion (Folmeg et al., 2024; Johnston et al., 2024; Zakarneh et al., 2025). In particular, AI translation has been found to assist learners in comprehending texts beyond their current proficiency level and in generating written output with greater lexical and grammatical accuracy

(Alkhofi, 2025; Lee et al., 2024; Tsai, 2025). These findings suggest that AI translation tools play a meaningful role in learners' engagement with language tasks, especially in contexts where linguistic demands exceed learners' independent capabilities.

Research on artificial intelligence in ELT also has developed across several related but distinct technological strands. Early studies primarily examined machine translation (MT) systems, such as Google Translate and DeepL, which convert text between languages and which learners frequently use to support comprehension and translation tasks (Alharbi, 2023; Almusharraf & Bailey, 2023; Polakova & Klimova, 2023). More recently, the emergence of generative artificial intelligence (GenAI) systems, including large language models such as ChatGPT and Claude, has expanded the functional scope of AI tools by enabling translation, paraphrasing, explanation, and extended text generation (Golec & Hachaj, 2025; Hagos et al., 2024; Kumar, 2024). In parallel, another line of research has investigated AI-supported writing tools, such as Grammarly and automated feedback systems, which correct grammar, and revise and improve writing (Anastasia et al., 2024; Jaramillo et al., 2025; Wale & Kassahun, 2024). While these strands share a common technological foundation, they have often been examined separately in ELT research due to their differing pedagogical uses. However, in classroom practice learners frequently use these tools interchangeably when translating English texts.

A number of studies have also explored teachers' perceptions and attitudes toward AI translation tools in EFL classrooms. Some teachers acknowledge the potential pedagogical benefits of AI translation as a form of scaffolding (Crompton et al., 2024; Kruk & Kałużna, 2024; Qassrawi & Al Karasneh, 2025), and others express concerns regarding learner dependency, reduced cognitive engagement, and threats to assessment validity (Jose & Jayaron Jose, 2024; Zhou & Hou, 2024). Ethical issues such as academic integrity, including the authenticity of learner output and authorship, have also been widely discussed, particularly following the emergence of GenAI systems capable of producing extended texts (Al-kfairy et al., 2024; Swindell et al., 2024). These studies highlight the ambivalence surrounding AI translation use and the absence of consensus regarding appropriate classroom practices.

Previous research has also examined the pedagogical benefits and risks associated with AI translation use. On the one hand, translation tools may lower affective barriers and increase learners' confidence to participate in meaning-focused tasks (Dinh, 2025; Sangkawong et al., 2025). On the other hand, uncritical or excessive reliance on AI translation may limit opportunities for language-focused learning, reduce productive effort, and hinder the development of fluency and automaticity (Liu et al., 2025; Tian, 2024). These mixed findings suggest that the pedagogical impact of AI translation tools is not inherently positive or negative, but highly dependent on how and when they are used within instructional contexts.

Despite the growing body of research on AI translation tools in EFL contexts, several important gaps remain. Existing studies have predominantly examined AI translation use in a generalized manner, often focusing on isolated skills, learner outcomes, or attitudinal responses but not on how such tools are regulated for different pedagogical purposes and learning conditions. In particular, there is limited empirical insight into how EFL teachers make strand-sensitive decisions regarding when, where, and how AI translation tools are permitted or restricted in classroom practice. Moreover, teachers' pedagogical rationales and the tensions they experience in balancing scaffolding, learner autonomy, and learning effectiveness across different instructional contexts remain underexplored. By adopting Nation's (2007) Four Strands framework as an analytical lens, the present study offers a novel contribution by systematically examining AI translation regulation in meaning-focused input, meaning-focused output, language-focused learning, and fluency development. This strand-based perspective enables a more nuanced understanding of teachers' regulatory practices and decision-making processes, thereby extending current AI-in-EFL research beyond skill-specific or attitude-focused accounts toward a principled, pedagogy-driven analysis of AI translation use.

3. Methodology

3.1. Research design and participants

The authors employed a qualitative multiple-case study design to explore how EFL teachers regulate students' use of AI translation tools across Nation's Four Strands framework. A case study approach is well suited to examining context-dependent pedagogical practices embedded in real instructional settings (Yaza, 2015). In this study, each participating teacher constituted an individual bounded case, representing pedagogical decision-making related to the use and regulation of AI translation tools in tertiary-level EFL instruction. The boundaries of each case were defined by the teacher's instructional practices, regulatory decisions, and pedagogical reasoning regarding AI translation use within their own courses. This framing enabled the authors to analyse how teachers interpreted and implemented AI translation regulation within their specific instructional contexts, while also supporting within-case and cross-case comparisons. Participants were selected by criteria of AI translation use and the pedagogical principles of Nation's Four Strands, as summarized in Table 1.

Participants were selected through purposive sampling to ensure direct relevance to the research focus (Bouncken et al., 2025). The final sample consisted of ten tertiary-level EFL teachers (coded as T1–T10), each treated as an individual case within the multiple-case design. To strengthen the case-based framing of the study, Table 2 provides a brief overview of the participants' contextual characteristics, including their teaching experience, typical instructional contexts, and classroom engagement with AI translation

Table 1. Participant criteria

Criterion	Description
Teaching role	Currently teaching EFL
Educational context	Teaching at the tertiary level
Experience with AI translation	Teaching courses in which students have access to or are known to use AI translation tools (e.g., Google Translate, DeepL, ChatGPT, Claude)
Pedagogical orientation	Demonstrates awareness of, or engagement with, instructional practices aligned with meaning-focused input, meaning-focused output, language-focused learning, and fluency development
Instructional scope	Involved in teaching language skills or integrated skills that can be analytically mapped onto the four strands
Willingness to participate	Voluntary participation with informed consent

Table 2. Overview of participant cases and contextual characteristics

Case	Teaching experience	Typical course / classroom context	Classroom engagement with AI translation
T1	4 years	Undergraduate EFL classes involving reading, vocabulary, and language analysis	Students used AI translation to support comprehension and occasionally to examine language form.
T2	6 years	Writing- and grammar-related tertiary EFL instruction	AI translation was closely regulated to avoid shortcut learning and overdependence during form-focused work.
T3	5 years	General English classes integrating reading, speaking, and discussion	AI translation was encountered as a support tool, but concern was expressed about learner dependency and reduced processing effort.
T4	9 years	Reading- and comprehension-oriented EFL instruction	Selective AI translation was permitted to maintain access to meaning without replacing engagement with English input.
T5	7 years	Reading and academic English instruction	Controlled use of AI translation was allowed to support understanding while risks of overreliance were monitored.
T6	8 years	Writing and language development courses	Limited AI use was allowed during preparation, but it was restricted during actual language production.
T7	11 years	Speaking, writing, and task-based classroom activities	Participant emphasized learner ownership and regulated AI translation to preserve students' own meaning-making.
T8	3 years	Communicative and performance-based EFL instruction	Participant restricted AI translation during output tasks to protect authentic learner expression.
T9	10 years	Multi-skill university English instruction	Participant reflected on the tension between task efficiency and meaningful learning when students used AI translation
T10	12 years	Fluency-oriented and teacher education-related EFL contexts	AI translation was consistently restricted during fluency tasks to preserve automaticity and uninterrupted language processing.

tools. These contextual differences were analytically important because teachers' regulatory decisions depended on the language skills that were emphasized in the courses they taught and the ways students used AI translation tools in classroom practice.

The selected cases reflected variation across instructional contexts and were pedagogically relevant to the Four Strands framework. This variation enabled the study to examine both recurring patterns and contextual differences in teachers' regulation of AI translation use. Consistent with qualitative case study research, the sample size was determined by the depth, richness, and comparative value of the data instead of by representativeness or statistical generalization (Wutich et al., 2024).

3.2. Conceptualization of AI translation tools

In this study, the term *AI translation tools* is used as an analytical category encompassing both machine translation systems (e.g., Google Translate, DeepL) and large language models (e.g., ChatGPT, Claude). Machine translation systems are designed for cross-lingual text conversion, whereas large language models are general-purpose language technologies capable of performing a wide range of tasks, including translation, paraphrasing, and explanation. However, in the instructional contexts described by participants, students primarily used these tools to support translation and meaning clarification when they engage with English texts. Because the focus of the study is on teachers' pedagogical regulation of AI-mediated translation support, it does not discuss the technological distinctions between systems, and it treats these tools collectively as a single analytical category.

3.3. Data collection and analysis

Data were collected through two qualitative methods, semi-structured interviews and focus group discussions (FGDs). Both interviews and FGDs were conducted in Bahasa Indonesia, the participants' first language, to support nuanced expression of pedagogical reasoning. Because the data were originally collected in Bahasa Indonesia, excerpts included in this manuscript were translated into English for reporting purposes. The researchers translated the interviews and carefully reviewed the translations to preserve the original meaning and pedagogical context of participants' statements (Flores, 2024; Khilji & Jogezai, 2024). The use of multiple data sources is consistent with qualitative case study research, which emphasizes methodological triangulation to capture complex pedagogical practices and enhance analysis (Schlunegger et al., 2024). The first stage of data collection involved semi-structured interviews with the participating EFL teachers. Semi-structured interviews are widely used to elicit participants' pedagogical reasoning and reflections on professional practice (Negrea, 2024). The interview protocol was designed to explore teachers' regulation of AI translation tools across the four strands of activities. To ensure consistency while allowing flexibility for probing and clarification, interview rules and guiding procedures were established. An overview of the interview protocol is presented in Table 3.

All interviews were audio-recorded with participants' informed consent and transcribed verbatim prior to analysis. Following preliminary analysis of the interview data, the second stage of data collection consisted of focus group discussions to expand on, clarify, and collectively reflect upon themes emerging from the interviews (Geampana & Perrotta, 2025). Two FGD sessions were conducted, each involving five EFL teachers. This group size was selected to promote balanced participation and in-depth discussion of pedagogical practices and challenges (Brown, 2022). Participants were

Table 3. Interview rules and protocol

Aspect	Description
Interview format	Semi-structured, one-on-one interviews
Guiding framework	Nation's Four Strands framework
Focus	Regulation of AI translation tools, pedagogical rationales, and challenges
Question type	Open-ended questions with follow-up probes
Duration	Approximately 60–90 minutes per interview
Language	Conducted in Bahasa Indonesia (participants' L1), based on participant preference
Recording	Audio-recorded with informed consent
Ethical considerations	Voluntary participation, confidentiality assured

Table 4. FGD procedures and protocols

Aspect	Description
Number of sessions	Two FGDs
Participants per session	Five EFL teachers
Grouping strategy	Purposive grouping
Basis of discussion	Themes emerging from interview analysis
Focus	Shared practices, pedagogical tensions, and decision-making
Facilitation	Moderated by the researcher
Duration	Approximately 90-100 minutes per session
Recording	Audio-recorded with informed consent
Interaction norms	Respectful turn-taking, confidentiality emphasized

grouped purposively to facilitate meaningful interaction and reflection on AI translation regulation across different instructional contexts. The rules and procedures of the FGDs are summarized in Table 4.

Data were analyzed using a theory-informed thematic analysis with a hybrid deductive-inductive approach, based on Nation's Four Strands framework (Naeem et al., 2023; Proudfoot, 2023). The Four Strands framework served to help organize the main thematic categories in relation to strand-specific learning purposes. Within these broad categories, however, iterative and interpretive coding allowed subthemes to emerge inductively from the data that related to teachers' regulatory practices, pedagogical rationales, tensions, and challenges. The stages of analysis are summarized in Table 5.

According to the objectives of this study, coding and theme development were guided by strand-specific pedagogical purposes. In line with the hybrid deductive-inductive approach, Nation's (2007) Four Strands framework provided the initial analytical structure, while subthemes were developed iteratively through repeated engagement with the data. Themes were refined through within- and cross-case comparisons to capture shared patterns, contextual variation, and strand-specific pedagogical tensions. Interpretation focused on teachers' pedagogical intentionality and professional judgment in regulating AI translation use in AI-mediated EFL classrooms.

Table 5. Theory-informed thematic analysis process using a hybrid deductive-inductive approach

Stage	Description
Familiarization	Repeated reading of interview and FGD transcripts to gain an overall understanding of participants' experiences and perspectives.
Initial deductive coding	Organizing the data according to strand-specific pedagogical purposes using Nation's Four Strands framework as the initial analytical structure.
Inductive subtheme development	Identifying strand-specific subthemes within each broad category through iterative coding, with attention to teachers' regulatory practices, pedagogical rationales, tensions, and challenges.
Theme review and refinement	Refining and comparing themes within and across cases to ensure coherence, analytic distinction, and sensitivity to contextual variation.
Interpretation	Interpreting the themes in relation to the Four Strands framework and the broader pedagogical implications of regulating AI translation use in EFL classrooms.
Reporting	Synthesizing findings through analytic narrative and illustrative excerpts to represent both shared patterns and participant variation.

3.4. Researcher reflexivity

As the primary researchers and interviewers, the authors hold positions within the field of EFL education and have professional familiarity with the integration of digital technologies in language teaching. This positionality provided contextual understanding of participants' pedagogical practices but also required careful attention to potential interpretive bias. To enhance reflexivity, the researchers maintained analytic memos during coding and interpretation, documenting emerging insights and reflecting on how personal perspectives might influence the analysis (Erdal, 2026). This practice supported transparency and critical self-awareness throughout the research process.

4. Findings

4.1. Regulation of AI translation tools across the four strands

4.1.1. MEANING-FOCUSED INPUT

In meaning-focused input, teachers generally adopted a supportive yet controlled approach to AI translation tools. In line with the goal of facilitating comprehension, AI use was typically allowed as scaffolding to help learners access meaning in texts and spoken input. However, this allowance was consistently selective and regulated, with teachers emphasizing that translation should support, but not replace, learners' engagement in meaning-making.

Table 6. Regulation of AI translation tools in meaning-focused input

Instructional focus/sub-theme	AI tools used	Purpose / use / regulation of AI translation tools	Students' activities
Reading comprehension	Google Translate, DeepL	Allowed selectively for word- or phrase-level clarification	Reading academic and authentic texts
Listening comprehension	Google Translate, DeepL	Used after listening to confirm understanding	Listening to lectures or videos

Instructional focus/sub-theme	AI tools used	Purpose / use / regulation of AI translation tools	Students' activities
Vocabulary in context	Google Translate, DeepL	Used to support meaning inference	Identifying meanings in context
Concept clarification	Claude, ChatGPT	Used to paraphrase complex ideas	Understanding content-related concepts

Teachers highlighted that AI translation helps maintain students' comprehension and engagement:

> *For input activities, I usually allow translation tools because the main goal is understanding. But I tell them not to translate everything, only difficult parts.* (T4, interview)

> *If students don't understand the text at all, they will disengage. Translation helps them stay with the task.* (FGD 1)

These views position AI as a facilitative tool for sustaining access to meaning. However, some teachers imposed stricter conditions:

> *I usually ask them to try guessing meaning first, and only after that they are allowed to check with translation. Otherwise, they depend on it too quickly.* (T2, interview)

Teachers' regulation seeks a balance between supporting comprehension and preventing dependency, aligning AI use with the pedagogical purpose of meaning-focused input while maintaining learners' active engagement.

4.I.2. MEANING-FOCUSED OUTPUT

In meaning-focused output, teachers adopted a more conditional and time-sensitive approach to regulating AI translation tools. Unlike in input-focused activities, AI use was generally restricted during task execution but allowed during preparatory stages such as planning and idea development. This aligns with the pedagogical goal of the strand, which emphasizes learners' ability to produce meaning using their own linguistic resources. While teachers acknowledged the value of AI in supporting idea generation, they consistently emphasized preserving learner ownership during actual communication.

Table 7. Regulation of AI translation tools in meaning-focused output

Instructional focus/sub-theme	AI tools used	Purpose / use / regulation of AI translation tools	Students' activities
Writing preparation	Google Translate, DeepL, ChatGPT	Allowed during planning and idea development	Drafting outlines, brainstorming
Speaking tasks	None or limited use	Restricted during real-time production	Discussions, role plays
Writing production	Google Translate, DeepL	Used selectively, not for full sentence generation	Paragraph and essay writing
Idea clarification	ChatGPT, Claude	Used before task execution	Refining intended messages

Teachers clearly distinguished between planning support and communicative performance:

> *They can use translation tools when preparing ideas, but during speaking or writing, I want to see their own effort.* (T7, interview)

> *If AI is used during the output, it's no longer the students' language. That's why we limit it.* (FGD 2)

These accounts suggest a shared concern with preserving the learner-generated nature of output. However, some teachers adopted a more flexible stance under specific conditions:

> *Sometimes I still allow limited use especially for lower-level students because otherwise they cannot express their ideas at all.* (T3, interview)

These findings indicate that regulation in this strand is phase-based and task-sensitive, but also context-dependent, particularly in relation to learners' proficiency. Teachers balance pedagogical support and learner ownership, ensuring that output activities remain meaning-focused while accommodating learners' communicative needs.

4.1.3. LANGUAGE-FOCUSED LEARNING

Language-focused learning was the strand in which teachers reported the most restrictive and deliberate regulation of AI translation tools. Participants expressed concern that unrestricted use could bypass key processes such as noticing, analysing, and paying explicit attention to form. As a result, AI translation was often prohibited to be used to generate answers, but it could be used for analysis. This reflects the strand's emphasis on cognitive engagement with linguistic features.

Table 8. Regulation of AI translation tools in language-focused learning

Instructional focus/ sub-theme	AI tools used	Purpose / use / regulation of AI translation tools	Students' activities
Grammar instruction	None	Prohibited to prevent shortcut learning	Grammar exercises
Vocabulary analysis	Google Translate, DeepL	Used for comparison and justification	Form–meaning mapping
Error analysis	ChatGPT, Claude	Used as material for critique	Identifying and correcting errors
Translation awareness	Google Translate, DeepL	Used reflectively with explanation	Comparing AI and student translation

Teachers emphasized strict control to maintain learning depth:

> *If they translate directly, they don't think about the grammar. That's why I control translation very strictly in this part.* (T2, interview)

> *We sometimes use AI translation to analyse why it's wrong or right, not to give instant answers.* (FGD 1)

In this strand, regulation was intended to preserve form-focused learning by tightly controlling how and why AI translation tools were used. However, some teachers allowed limited support:

> *Sometimes I let them check translation after they try, just to confirm their understanding.* (T5, interview)

Regulation was highly controlled but analytically oriented, balancing restriction and reflective use to support form-focused learning. AI was not used to give answers, but to support analysis, keeping learners focused on noticing and understanding language forms.

4.1.4. FLUENCY DEVELOPMENT

In fluency development, teachers reported the most consistent and strict regulation, generally prohibiting AI translation tools. Fluency tasks were seen as requiring uninterrupted processing and reliance on internalized language resources. Any use of AI was considered incompatible with the goals of speed, automaticity, and smooth production.

Table 9. Regulation of AI translation tools in fluency development

Instructional focus/ sub-theme	AI tools used	Purpose / use / regulation of AI translation tools	Students' activities
Timed reading	None	Prohibited to maintain processing speed	Speed reading
Repeated speaking	None	Prohibited to support automaticity	Repeated oral practice
Timed writing	None	Prohibited during fluency tasks	Timed writing activities
Familiar language use	None	Emphasis on internal language resources	Practice with known vocabulary

The interview and FGD data reveal a strong consensus that fluency-oriented activities should be completed without interruption from external support tools, including AI translation.

> *Fluency means they should stop to translate. Translation breaks the flow.* (T10, interview)

> *For fluency, we are very strict. No AI tools at all.* (FGD 2)

These accounts indicate that teachers associated fluency development with learners who are able to retrieve and use language rapidly from their own existing resources and do not rely on external mediation. A few teachers however acknowledged minimal flexibility outside core tasks:

> *Maybe before the activity they can check meaning, but once the task starts, no tools.* (T8, interview)

Regulation in this strand is highly restrictive, prioritizing continuous processing and automatic language use while limiting pre-task support. This ensures that learners rely on their existing linguistic resources, thus developing speed, fluency, and confidence without interruption.

4.2. Pedagogical rationales underpinning teachers' regulation of AI translation tools across the four strands

4.2.I. PEDAGOGICAL RATIONALES IN MEANING-FOCUSED INPUT

In meaning-focused input, teachers regulated AI translation tools due to concerns about learners' access to meaning and sustained engagement. Participants emphasized that comprehension breakdowns could hinder participation, particularly for lower-proficiency learners, and that AI translation could function as a selective scaffold to support understanding. At the same time, teachers were aware of the risks of overuse and aimed to balance support with active engagement.

Table 10. Pedagogical rationales for regulating AI translation in meaning-focused input

Pedagogical concern/sub-theme	Rationale for regulation	Perceived risk of unrestricted AI translation	Strand-specific learning goal
Access to meaning	Support comprehension of difficult input	Passive reliance on translated text	Understanding messages and content
Learner engagement	Prevent disengagement from texts	Reduced interaction with English input	Sustained exposure to English
Proficiency differences	Support lower-level learners	Overdependence among higher-level learners	Inclusive participation
Focus on content	Prioritize meaning over form	Neglect of English lexical forms	Meaning-focused processing

The excerpts below illustrate how teachers articulated these rationales when explaining their regulatory decisions.

> *If they don't understand the input, learning cannot happen. Translation helps them access the meaning first, especially for complex texts.* (T5, interview)

> *We agreed that for input activities, comprehension is more important than accuracy, so translation is acceptable if it helps them understand.* (FGD 1)

However, some teachers emphasized limiting early reliance:

> *If students use translation too quickly, they stop trying to understand the English.* (T3, interview)

Overall, teachers' rationales showed their efforts to balance between facilitating access to meaning and preventing dependency, aligning AI use with the goals of meaning-focused input while maintaining learner engagement.

4.2.2. PEDAGOGICAL RATIONALES IN MEANING-FOCUSED OUTPUT

In meaning-focused output, teachers' rationales centred on preserving learner ownership and ensuring authentic opportunities for meaning-making. Participants viewed unrestricted AI translation during production as a threat to communicative intent and learner agency, leading to conditional and time-bound regulation. While they sometimes accepted AI during preparation, they typically restricted it during actual performance to maintain the integrity of learner-generated language.

Table 11. Pedagogical rationales for regulating AI translation in meaning-focused output

Pedagogical concern/sub-themes	Rationale for regulation	Perceived risk of unrestricted AI translation	Strand-specific learning goal
Learner ownership	Ensure output reflects learners' abilities	AI-generated language replacing learner output	Meaningful communication
Communicative intent	Encourage meaning negotiation	Reduced interaction and negotiation	Expressing meaning independently
Assessment validity	Maintain authenticity of performance	Misrepresentation of learner competence	Genuine language use
Confidence building	Support gradual independence	Overreliance on external support	Communicative confidence

The interview and FGD excerpts demonstrate how teachers justified restricting AI translation during communicative performance.

> *If they depend on AI when producing language, they don't really practice expressing meaning by themselves.* (T8, interview)

> *For output, we feel it's important that students take responsibility for their language, even if it's not perfect.* (FGD 2)

At the same time, some participants appeared to frame limited support before production as pedagogically acceptable, particularly when it helped learners organize intended meaning without replacing their final language performance.

> *For weaker students, I sometimes allow a little help so they can express their ideas first.* (T6, interview)

These rationales show teachers strive to balance between protecting communicative authenticity and providing support, ensuring that output activities remain learner-driven while accommodating varying proficiency levels.

4.2.3. PEDAGOGICAL RATIONALES IN LANGUAGE-FOCUSED LEARNING

In language-focused learning, teachers' rationales were strongly tied to maintaining cognitive engagement and supporting explicit attention to linguistic form. Participants viewed unrestricted AI translation as potentially bypassing key processes such as noticing, analysing, and reflecting, which are central to form-focused instruction. As a result, AI use was tightly regulated or redirected toward analytical purposes.

Table 12. Pedagogical rationales for regulating AI translation in language-focused learning

Pedagogical concern/sub-themes	Rationale for regulation	Perceived risk of unrestricted AI translation	Strand-specific learning goal
Cognitive engagement	Encourage active analysis of language	Shortcut learning	Noticing and understanding form
Metalinguistic awareness	Promote reflection on form–meaning links	Superficial understanding	Explicit language knowledge
Learning depth	Require learner effort	Reduced learning durability	Accurate language use
Instructional focus	Align tools with form-focused tasks	Misalignment with lesson goals	Controlled language learning

The excerpts below reflect teachers' reasoning regarding the incompatibility of unrestricted AI translation with form-focused instruction.

> *When students just translate, they skip the thinking process. Language learning needs effort, especially for grammar.* (T1, interview)

> *We believe translation should be analysed, not simply used, otherwise students don't really learn the language.* (FGD 1)

Teachers' rationales in this strand reveal a shared emphasis on protecting the integrity of form-focused learning by tightly regulating AI translation use. However, some teachers allowed limited confirmatory use:

> *Sometimes I let them check translation after they try, to make sure they understand the form correctly.* (T4, interview)

These rationales aim to restrict students taking shortcuts but to promote analytical use, ensuring that AI only supports form-focused learning. By doing so, teachers aim to keep learners actively engaged in noticing, analysing, and understanding language forms, which are essential for developing accurate and durable language knowledge.

4.2.4. PEDAGOGICAL RATIONALES IN FLUENCY DEVELOPMENT

In fluency development, teachers' rationales were grounded in the need for uninterrupted processing and the development of automaticity. AI translation was widely seen as incompatible with these goals, as it could interrupt flow and reduce reliance on learners' internalized language. Consequently, most teachers either strictly regulated or completely prohibited AI tools in fluency tasks.

Table 13. Pedagogical rationales for regulating AI translation in fluency development

Pedagogical concern/sub-themes	Rationale for regulation	Perceived risk of unrestricted AI translation	Strand-specific learning goal
Automaticity	Support rapid language processing	Processing flow is disrupted.	Fluent language use
Processing speed	Maintain task pacing	Performance is slowed.	Speed and efficiency
Internalization	Encourage reliance on existing knowledge	Students depend on external tools.	Language automatization
Task integrity	Preserve fluency conditions	Task purpose is undermined.	Sustained practice

The interview and FGD excerpts below illustrate teachers' shared views regarding the necessity of excluding AI translation from fluency-focused tasks.

> *Fluency tasks should push students to use what they already know, not to stop and translate.* (T6, interview)

> *If translation is allowed in fluency practice, the activity loses its meaning.* (FGD 2)

Across cases, teachers' rationales in fluency development emphasized the importance of protecting learning conditions that foster automatic and efficient language use. However, a few teachers allowed minimal flexibility before tasks:

> *Before fluency practice, I sometimes let them check difficult words, but not during the activity.* (T9, interview)

These rationales emphasize protecting continuous processing and automatic language use, while allowing only limited pre-task support to prepare learners for fluent performance. This helps ensure that learners rely on internalized language resources, developing speed, flow, and confidence without interruption.

4.3. Challenges and tensions in regulating AI translation use across the four strands

4.3.I. TENSION BETWEEN ACCESS TO MEANING AND LEARNER DEPENDENCY

A recurring challenge that teachers reported was the tension between providing access to meaning and preventing learner dependency on AI translation tools. This dilemma was described as an ongoing pedagogical balancing act, particularly in meaning-focused input, but also extending to output tasks where teachers had to balance comprehension support with independent language use.

Table 14. Tension between access to meaning and learner dependency

Tension dimension/ sub-theme	Strand(s) involved	Nature of the challenge	Teacher response
Comprehension support vs independence	Meaning-focused input	AI translation supports understanding but risks passive reliance.	Selective permission and explicit guidance
Inclusion vs overuse	Meaning-focused input	Lower-level learners need support, higher-level learners may overuse.	Differentiated regulation
Immediate success vs long-term learning	Input and output	Tasks are completed, but learning depth is uncertain.	Monitoring and reminders
Scaffolding vs dependency	Input and output	It is difficult to determine when to withdraw support.	Gradual restriction

The interview and FGD excerpts below illustrate how teachers articulated this tension in their classroom decision-making.

> *If I don't allow translation, some students cannot understand the text at all. But if I allow it too much, they stop trying to process English.* (T3, interview)

> *We keep asking ourselves where to draw the line, because translation helps, but at the same time it makes students too comfortable.* (FGD 1)

However, some teachers viewed limited dependence as part of learning:

> *I think some dependence is normal at the beginning, as long as students gradually reduce it.* (T2, interview)

Teachers described regulation as adaptive and ongoing, balancing students' immediate comprehension needs with long-term language development. This requires continuous adjustment based on learners' proficiency, task demands, and patterns of AI use to ensure support does not become dependency.

4.3.2. TENSION BETWEEN PEDAGOGICAL SUPPORT AND LEARNER AUTONOMY

Another key challenge was the tension between providing pedagogical support and fostering learner autonomy. This was especially evident in meaning-focused output and language-focused learning, where teachers aimed to scaffold learning without undermining students' responsibility for language production and analysis.

Table 15. Tension between pedagogical support and learner autonomy

Tension dimension/ sub-theme	Strand(s) involved	Nature of the challenge	Teacher response
Scaffolding vs ownership	Meaning-focused output	AI supports expression but reduces learner ownership.	Time-bound regulation
Guidance vs independence	Language-focused learning	Students expect AI-provided answers.	Explicit justification requirements
Confidence vs reliance	Output	Support builds confidence but encourages dependence.	Gradual withdrawal of support
Teacher control vs learner responsibility	Output and language-focused learning	Consistently enforcing boundaries is difficult.	Negotiated classroom rules

The excerpts below demonstrate how teachers reflected on this tension when regulating AI translation use.

> *I want to help them express ideas, but sometimes they rely too much on AI and don't try to formulate sentences themselves.* (T7, interview)

> *We notice that students quickly become dependent if we are not clear about the limits of AI use.* (FGD 2)

However, some teachers emphasized the positive role of support:

> *With some guidance, students feel more confident to try expressing ideas, even if it's not perfect.* (T8, interview)

This tension between support and independence requires teachers to adjust their regulation to promote learner autonomy while still providing necessary scaffolding. This often involves gradually reducing support and setting clear boundaries so that learners become more responsible for their own language use over time.

4.3.3. TENSION BETWEEN LEARNING EFFECTIVENESS AND TASK EFFICIENCY

Teachers also reported a tension between learning effectiveness and task efficiency when regulating AI translation tools. While AI enabled students to complete tasks more quickly and accurately, participants questioned whether this efficiency supported deep and durable learning, particularly in language-focused learning and fluency development.

Table 16. Tension between learning effectiveness and task efficiency

Tension dimension/ sub-theme	Strand(s) involved	Nature of the challenge	Teacher response
Speed vs depth	Language-focused learning	Tasks completed quickly but superficially.	Increased monitoring
Accuracy vs understanding	Output and language-focused learning	Answers are correct without learning process.	Process-oriented assessment
Time pressure vs practice	Fluency development	AI saves time but disrupts practice conditions.	Prohibition in fluency tasks
Classroom management vs pedagogy	Across strands	Efficiency eases management but weakens learning.	Context-based decisions

The following excerpts illustrate teachers' ambivalence toward the efficiency afforded by AI translation tools.

> *With AI, students finish tasks faster, but I'm not always sure they actually learn from it.* (T9, interview)

> *Sometimes efficiency is tempting, but we know learning needs time and effort.* (FGD 1)

However, some acknowledged its practical value:

> *Sometimes it helps manage time, especially with large classes, even if we need to control how it's used.* (T4, interview)

This tension between task efficiency and learning depth requires teachers to prioritize meaningful engagement over speed while adapting to classroom realities. It highlights the need to ensure that faster task completion does not come at the expense of cognitive processing, practice, and long-term retention, which are essential for effective language learning.

5. Discussion

This study examined how EFL teachers regulate students' use of AI translation tools across the four strands of language-learning activities, the pedagogical rationales underpinning such regulation, and the challenges teachers encounter in practice. The findings do not frame AI translation as uniformly beneficial or problematic, but they indicate that teachers' regulatory decisions are pedagogically principled, strand-sensitive, and

contextually negotiated. Interpreted through Nation's Four Strands framework (Nation, 2007; Nation & Macalister, 2020; Nation & Yamamoto, 2012), these findings also inform the proposal of a strand-based model for AI-assisted English instruction.

A central insight of this study is that teachers treat AI translation not as a general-purpose classroom tool but as a pedagogically contingent resource whose value depends on instructional purpose. Teachers' strand-specific regulation aligns with the Four Strands framework, which emphasizes that different learning conditions require different forms of learner engagement (Nation, 2007; Newton, 2024). This suggests that the framework remains applicable and useful in AI-mediated EFL classrooms, despite having been developed prior to the emergence of AI translation technologies.

In meaning-focused input, teachers' relatively permissive regulation reflects a prioritization of access to meaning and sustained engagement with English texts. This interpretation resonates with prior research highlighting the role of scaffolding in supporting comprehension when linguistic demands exceed learners' independent capacity (Shafiee Rad, 2025; Wang et al., 2025). Importantly, teachers' practices suggest that AI translation functions as a temporary scaffold, not as a substitute for input, thus preserving exposure to English while reducing comprehension breakdowns. By contrast, teachers' more restrictive regulation that is observed in meaning-focused output reflects their concern for learner agency and communicative ownership, which are central to productive language use (Nation & Macalister, 2020). Teachers' differentiation between planning and performance stages extends existing discussions of AI use in writing and translation (Alharbi, 2023; Lee et al., 2024) by showing that task phase, not only task type, plays a crucial role in pedagogical decision-making.

In language-focused learning, teachers' tight regulation aligns with the strand's emphasis on noticing, analysing, and paying attention to form (Nation & Yamamoto, 2012). Teachers' concern that AI translation could bypass essential cognitive processes echoes findings from previous studies warning against superficial engagement and L2 avoidance in unregulated machine translation use (Murtisari et al., 2024). AI translation was reframed as an object of analysis rather than a shortcut to answers. Finally, the near-universal exclusion of AI translation from fluency development activities reflects teachers' recognition that fluency depends on uninterrupted processing and reliance on internalized knowledge (Suzuki et al., 2025; Takizawa, 2024). This finding reinforces the pedagogical principle that not all learning conditions benefit from technological support. These interpretations challenge binary views of AI translation as either a threat or a solution, emphasizing instead the importance of pedagogical alignment.

The findings also reposition teachers as active pedagogical regulators, rather than technology gatekeepers. Teachers' rationales and reported tensions suggest that regulation is shaped by professional judgment, not fixed rules, echoing calls for teacher agency in technology-integrated education (Knussen & Agnew, 2022; Williyan et al., 2025, 2026). Teachers continuously negotiated competing priorities such as access versus independence and efficiency versus learning depth, reflecting the inherent complexity of instructional decision-making. The tensions identified should not be interpreted as inconsistencies, but as evidence of teachers' efforts to preserve pedagogical integrity in an era of rapid technological advances. This aligns with prior research highlighting teachers' ambivalence toward AI tools and the complexity of determining appropriate classroom practices (Filiz et al., 2025; Walter, 2024).

Cross-case differences were observed in how teachers permitted, limited, or conditioned the use of AI translation tools, but these differences did not amount to fundamentally opposing pedagogical positions. Rather, participants showed broad convergence in their belief that AI translation use required instructional regulation. The variation that emerged was therefore primarily one of degree, context, and pedagogical emphasis, but not direct contradiction. This pattern suggests that the cases reflected structured variation within a shared pedagogical orientation, as opposed to sharply contrasting positions.

Building on the findings, this study proposes the Strand-Based AI-Assisted English Teaching Model, grounded on the Four Strands framework (Nation, 2007). The model is a synthesis of teachers' regulatory practices and pedagogical rationales that illustrates how AI translation tools can be integrated purposefully rather than uniformly across instructional contexts.

Figure 2 visualizes the model by positioning the four strands as interconnected pedagogical domains within a balanced curriculum, with each strand associated with a distinct mode of AI translation regulation. The model does not present prescriptive rules, but it conceptualizes AI translation as a pedagogically contingent resource, whose role varies according to instructional focus and learning conditions.

At the core of the model is the principle of strand alignment, emphasizing that AI translation use must correspond to the primary learning goal of the task. Surrounding this core, the figure highlights differentiated regulatory orientations: conditional support in meaning-focused input, phase-sensitive restriction in meaning-focused output, analytical use in language-focused learning, and exclusion in fluency development. This visual differentiation reinforces the finding that effective AI integration depends not on the tool itself but on how and when it is pedagogically framed.

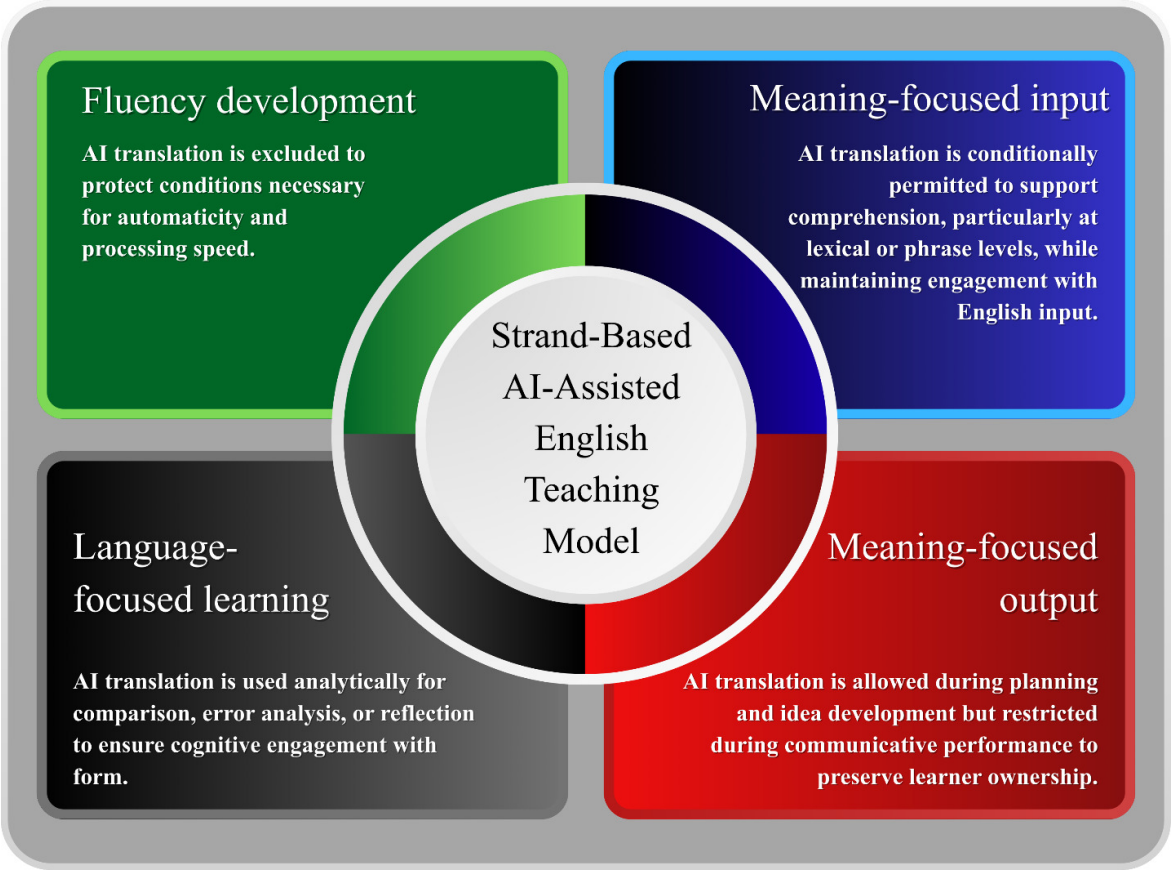

Figure 2. Strand-Based AI-Assisted English Teaching Model

The circular structure of the model further reflects the dynamic movement between strands in classroom practice, underscoring that AI regulation is not static but responsive to task sequencing and instructional emphasis. By foregrounding task-phase sensitivity, the model captures teachers' nuanced distinctions between preparation, performance, and reflection stages, particularly in output-oriented activities. In addition, the model implicitly embeds pedagogical transparency, as teachers' regulatory decisions are made visible and explicable to learners rather than remaining implicit or ad hoc. Importantly, the model does not advocate blanket encouragement or prohibition of AI translation tools. Instead, it supports teachers' professional judgment, enabling them to adapt AI use in ways that preserve core learning conditions across the four strands. In doing so, the model extends the Four Strands framework into AI-mediated instruction and provides a principled alternative to technology-driven or policy-driven approaches to AI adoption.

6. Conclusion

The findings suggest that discussions of AI in EFL pedagogy should shift from questions of permissibility to questions of pedagogical purpose. For teacher education, this highlights the need to prepare teachers to regulate AI tools thoughtfully through established pedagogical frameworks. By extending the Four Strands framework into AI-assisted instruction and operationalizing it through a strand-based teaching model, this study offers a principled

approach to understanding and managing AI translation use in EFL classrooms. While theoretically grounded, the study focuses on teachers' pedagogical decision-making rather than direct learning outcomes. Future research may examine how strand-aligned regulation of AI translation tools affects learner development, triangulate teacher perspectives with classroom interaction and student experiences, and explore the model's applicability across diverse institutional, cultural, and proficiency contexts.

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Ethics approval

This study received ethical approval from the Research Ethics Committee of the Faculty of Teacher Training and Education, Universitas Siliwangi, on **01 December 2025**. All procedures involving human participants were conducted in accordance with institutional ethical standards. All participants provided informed consent prior to participation. All data were anonymized and handled confidentially for research purposes.

Consent to participate

All participants provided informed consent prior to participation and were informed of their right to withdraw from the study at any stage.

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Conflict of interest

The authors declare that they have no conflict of interest.

Full author details

Aldha Williyan
English Education Department, Universitas Siliwangi, Tasikmalaya, Indonesia
alwilliyan@unsil.ac.id
https://orcid.org/0009-0009-0953-8441

Neni Marlina
English Education Department, Universitas Siliwangi, Tasikmalaya, Indonesia
nenimarlina@unsil.ac.id
https://orcid.org/0000-0001-8195-5156

Author contributions

Aldha Williyan conceptualized and led the study, designed the methodology, conducted data collection and analysis, and drafted the manuscript. **Neni Marlina** contributed to data interpretation, critical review, and refinement of the manuscript. Both authors approved the final version of the manuscript.

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