

# GAI Pedagogical Agents and Teacher-Guided Prompt Use in EFL Debate Training

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**Abstract:** This study investigated the pedagogical functions and learner uptake associated with two generative AI approaches for training EFL students' debating skills. Conducted within the context of a Model United Nations (MUN) activity in two university EFL classes, 16 students from class A engaged with a generative AI pedagogical agent (GAI-PA), while another 16 from class B used teacher-guided ChatGPT prompts to enhance their debating over an 8-week period. The instructions embedded in the two approaches were analyzed using a constructivist grounded theory approach to determine the specific pedagogical functions emerging from each system. After exposure, the learners' uptake of the functions was examined through a deductive analysis and rating of their responses recorded in their conversation sessions. Results show the GAI-PA enforced a highly structured and pedagogically driven design, producing consistently high learner uptake across most functions. In contrast, the teacher-guided prompt system relied on greater learner initiative and yielded more variable uptake, producing particularly low learner uptake in cognitively demanding areas such as discourse construction, revision, and ethical AI usage.

**Keywords:** Debating, English as a foreign language (EFL), generative AI pedagogical agent (GAI-PA), pedagogical functions, teacher-guided prompt use

## 1. Introduction

Debating enhances EFL learners' communication skills in academic and real-world settings (García-Sánchez, 2020), but it also presents challenges. Learners struggle with fear of mistakes and negative evaluation (Gregersen & Horwitz, 2002), and also low self-confidence (Aslan & Thompson, 2021). Cultural norms emphasizing politeness and group harmony further reduce assertiveness in adversarial formats (Nursanti et al., 2023).

Generative AI (GAI) tools like ChatGPT, however, offer new potential for debate training through interactive, human-like responses. Despite their growing use, the literature lacks studies comparing the pedagogical effectiveness of the two main approaches—GAI pedagogical agents (GAI-PA) and teacher-guided prompt use—through which GAI can be employed for EFL debate training. Specifically, the literature does not identify the pedagogical functions each supports and how learners engage with them. Yet, understanding this can guide educators in choosing strategies to optimize GAI-assisted debate learning. Hence, this study sought to address these research questions (RQs):

1. What pedagogical functions for EFL debate training emerge from the GAI-PA and how are they different from those emerging from teacher-guided prompt use?
2. How do learners take up these functions during their debate practice?

## 2. Literature Review

### 2.1 Debating and the Model United Nations

Debating is a structured form of argumentation involving arguments, counterarguments, and rebuttals to persuade an audience or judges (El Majidi et al., 2021; Savitz et al., 2021).

For upper-intermediate EFL learners, it is an important but cognitively demanding goal due to the need for research, organization, and autonomy (Council of Europe, 2020).

One popular format for encouraging student engagement in debating is the Model United Nations (MUN), where students act as country delegates debating global issues (Calossi & Coticchia, 2018; Nfor, 2023). MUN activities include research, position paper writing, speech delivery, and debates and diplomacy—requiring high levels of student-centered learning (Hazen, 2019). Through offering learners dynamic role-play and a structured learning path from preparation to live debating, however, MUN fosters engagement and builds key skills like negotiation and public speaking (McIntosh, 2001; O'Dell et al., 2024).

Being a face-to-face format of debating, though, MUN can trigger anxiety and limits revision opportunities, especially sentence-level revisions, due to its real-time pace (Hirci & Peterlin, 2020; Ho, 2015; Liu & Sadler, 2003). Pre-debate practice with GAI tools like ChatGPT, on the other hand, can offer a low-pressure environment to develop linguistic and strategic competence ahead of classroom debates.

## 2.2 *Pedagogical Functions of Teacher-Guided Prompt Use and GAI-PAs*

Prompt engineering involves training students or teachers to craft effective prompts that guide tools like ChatGPT toward high-quality, pedagogically relevant responses. As a teacher-guided use of AI, it enhances learning by improving instructional precision and adaptability. It supports pedagogical functions—specific instructional operations such as guidance, emotional support, and reflective learning—that structure the learning process (Lee & Lee, 2024; Yusuf et al., 2025). Wang et al. (2023) found that effective prompt engineering improved information quality and efficiency in flipped classrooms. Darmawansah et al. (2025) showed that strong prompts enhanced ChatGPT's adaptability and students' argumentation. Ghafouri et al. (2024) reported that prompt quality improved instructional clarity and boosted both teacher self-efficacy and student writing. These studies demonstrate how teacher-guided prompting enables AI to deliver targeted instructional support.

Despite the positive results reported, teacher-guided prompt use may not always lead to high quality prompts in students. Darmawansah et al. (2025), for example, assert that despite students significantly higher argumentative speaking performance as a result of their learning in ChatGPT, prompt quality was still a significant issue and therefore encouraged educators to pay more attention to this. Woo et al. (2024) also found that learners experienced high cognitive overload due to the prompt engineering required for complex language learning tasks. Finally, an issue that cannot be overlooked is whether students have the self-regulated learning strategies needed for recognizing problems and designing better approaches, which prompt engineering for complex tasks like debating would require. In many EFL contexts, students have been exposed to long and sustained usage of overly-strict teacher-centered instruction (Yuan, 2024). Under the influence of such backgrounds, students exhibit amotivation, fear of failure, and avoidance of challenges (Bartholomew et al., 2018).

An alternative to prompt engineering is to employ GAI-PAs, that is GAs that purposefully function as AI educators. In ChatGPT, this option is available in its MyGPT area that allows creators to customize their own GPT. Custom GPTs are transformed into GAI-PAs by uploading domain-specific resources (e.g. textbooks) and providing explicit pedagogical instructions to guide GIA-user interactions (Collins et al., 2024; Sevgi et al., 2024).

Recent studies have begun to report how custom GPTs, when embedded with pedagogical frameworks, can deliver targeted instructional functions often difficult to achieve solely with teacher-guided prompt use. For example, *AnatomyGPT* was developed as a domain-specific tutor. Its ability to provide rationales and citations points based on its knowledge base and pedagogical guidance made it a superior source of transparent and source-based academic learning for students (Collins et al., 2024). *GamiflcA Edu*, designed to support educators in implementing gamification and serious games, also achieved similar results. By means of the instructional frameworks embedded in its system, it was able to make use of the pedagogical function of scaffolded design to generate content tailored to diverse instructional contexts (López-Galisteo et al., 2025). Like other systems, both systems demonstrate that GAI-PAs achieve pedagogical functions that exhibit strong user uptake.

### 2.3 Guidelines for Implementing AI-Assisted Language Learning

While both forms of GAI-assisted learning can deliver pedagogical value, differences in how they embed and execute instructional functions raises critical questions about general guidelines both should follow to ensure best practices. Drawing on the literature in AI-assisted learning and the learning needs of students pursuing upper intermediate English proficiency, 5 guidelines emerge for implementing GAI-assisted language learning in an MUN context. GAI should enable 1) *adaptive learning paths*, allowing learners to select topics and adjust complexity for skill progression, 2) *real-time feedback and scaffolding* to guide self-correction in vocabulary, grammar, diplomatic language, and argument structure, 3) *engagement and interactive learning* through dynamic simulations and role-playing to improve students communication, 4) *self-regulated learning* to encourage goal-setting, performance monitoring, and reflection, and 5) *AI literacy and ethics* to ensure learners critically assess AI-generated arguments, detect biases, and maintain diplomatic accuracy (Chang et al., 2023; Khalil et al., 2024; Ng et al., 2024; Pan et al., 2024; Qadhi, et al., 2024; Shi & Aryadoust 2024; Wei, 2023).

The instructional architecture of both teacher-guided prompts and GAI-PAs should reflect these principles, yet it is important to note that their designs differ in assumptions about learner needs and instructional control. These differences affect the type of support provided, cognitive demands, learner autonomy, and the consistency of pedagogical delivery. Understanding their distinct functions and how learners respond is thus crucial for designing effective, context-sensitive AI learning systems.

## 3. Methods

### 3.1 Research Approach

This study adopted a qualitative research design. Students from two classes with comparable levels and characteristics were assigned to either the experimental (GAI-PA) or control system (teacher-guided prompt use) for 8 weeks of debate training. After the intervention, a deductive analysis and rating of the learners' responses on their respective systems were conducted to determine learner uptake of each system's pedagogical functions. These pedagogical functions had been previously identified using a constructivist grounded theory analysis of each system's embedded instructions.

### 3.2 Participants

The participants were drawn from two intact sophomore English Presentation and Writing classes in the College of Management, where two EFL instructors were jointly implementing a semester-long Model United Nations project using comparable instruction, goals, and content. With their consent, an email invitation was sent and 56 students enrolled in the supplementary debate training program. Following a purposeful selection procedure, 32 of the 56 students were selected and assigned to the experimental ( $n = 16$ , Class A) and control group ( $n = 16$ , Class B). The rest received the same intervention as their class peers but were excluded from the study due to incomplete sampling. All participants had been placed by the university in advanced-level English classes based on their TOEIC scores ( $M = 652$  for experimental;  $M = 667$  for control). For our study, their scores were deemed suitable for debate training (Council of Europe, 2020). The groups were also balanced in gender (experimental:  $M = 7$ ,  $F = 9$ ; control:  $M = 8$ ,  $F = 8$ ) and shared similar profiles, including limited debate and argumentative writing experience, high interest in GAI, and little prior exposure to teacher-guided prompt use. Overall, the final sample of 32 students (16 per group) reflected both the voluntary nature of the participation and purposeful sampling to ensure group equivalence by reducing confounding variables, though this reduced overall sample size.

### 3.3 Procedure

#### 3.3.1 Exposure to the Intervention

All the participants from the two classes who enrolled were informed of the study's purpose—to explore the use of GAI tools like ChatGPT in debate training—and signed a consent form. They then completed a participant profile. Based on their participant profile, 16 students from class A and 16 students from class B were chosen to form the experimental and control groups and were then assigned to their respective classes to be taught by experienced EFL instructors familiar with teacher-guided prompt use. The intervention spanned weekly onsite sessions of 2 hours for 8 weeks and proceeded in four phases: 1 week of training, 3 weeks of adaptive practice, 3 weeks of unguided practice, and 1 week of review and reflection. After each practice with their respective systems, students submitted links of their conversation session in ChatGPT for feedback to guide subsequent practice. The study concluded with appreciation expressed to the participants and instructors, who were invited to a forum to receive the study's results and share reflections.

#### 3.3.2 System Design

A GAI-PA, *MUN Debate Coach*, was developed using ChatGPT's MyGPT tool. Table 1 shows the system's two modules, illustrating how it supported both scaffolded practice and independent performance, while figure 1 shows its general pedagogical pathway.

Table 1. *Modules Installed in MUN Debate Coach*

Modules	Stages	Description
Neonate	1. Debater's Profile	Student prompted to complete profile
	2. Sub-Issue & Country	Student and ChatGPT decide roles and topic
	3. Guided Debating	ChatGPT provides scaffolded learning and feedback to enable guided debating
	4. Reflection	Student reflects on original debater's profile
Tribune	1. Debater's Profile	Student completes debater's profile with prompts from ChatGPT
	2. Sub-issue & Country	Student and ChatGPT decide roles and topic
	3. Debating	Student and ChatGPT present and defend arguments, with learner independently constructing his parts and ChatGPT providing feedback
	4. Reflection	Student reflects on original debater's profile

The core of the system was the instructional files in its backend containing pre-installed prompts designed using a chain-of-reasoning approach. To execute the core instructions, the system first put itself into a predetermined context defining its desired mode of operation. The system's entire instructional pathway depended on knowing the previous and anticipating the next step, preventing unscripted reasoning paths, thus creating interlocked steps. Prompts were also carefully crafted with consistent terminology, clear phrasing, and transition markers to guide the system. They also combined procedures with examples, included scripts and directives outlining what the system should and should not do, and instructed the GAI-PA to "speak out" the steps it would follow, reinforcing instructional awareness. Once the system was completed, it underwent iterative refinement through pilot testing with students similar to the target group until it achieved the consistency required for experimental use.

The control group engaged with ChatGPT through a teacher-guided, prompt-based model simulating structured debate preparation. Unlike the experimental group's closed, scaffolded AI system, this semi-structured design used teacher-curated prompts and

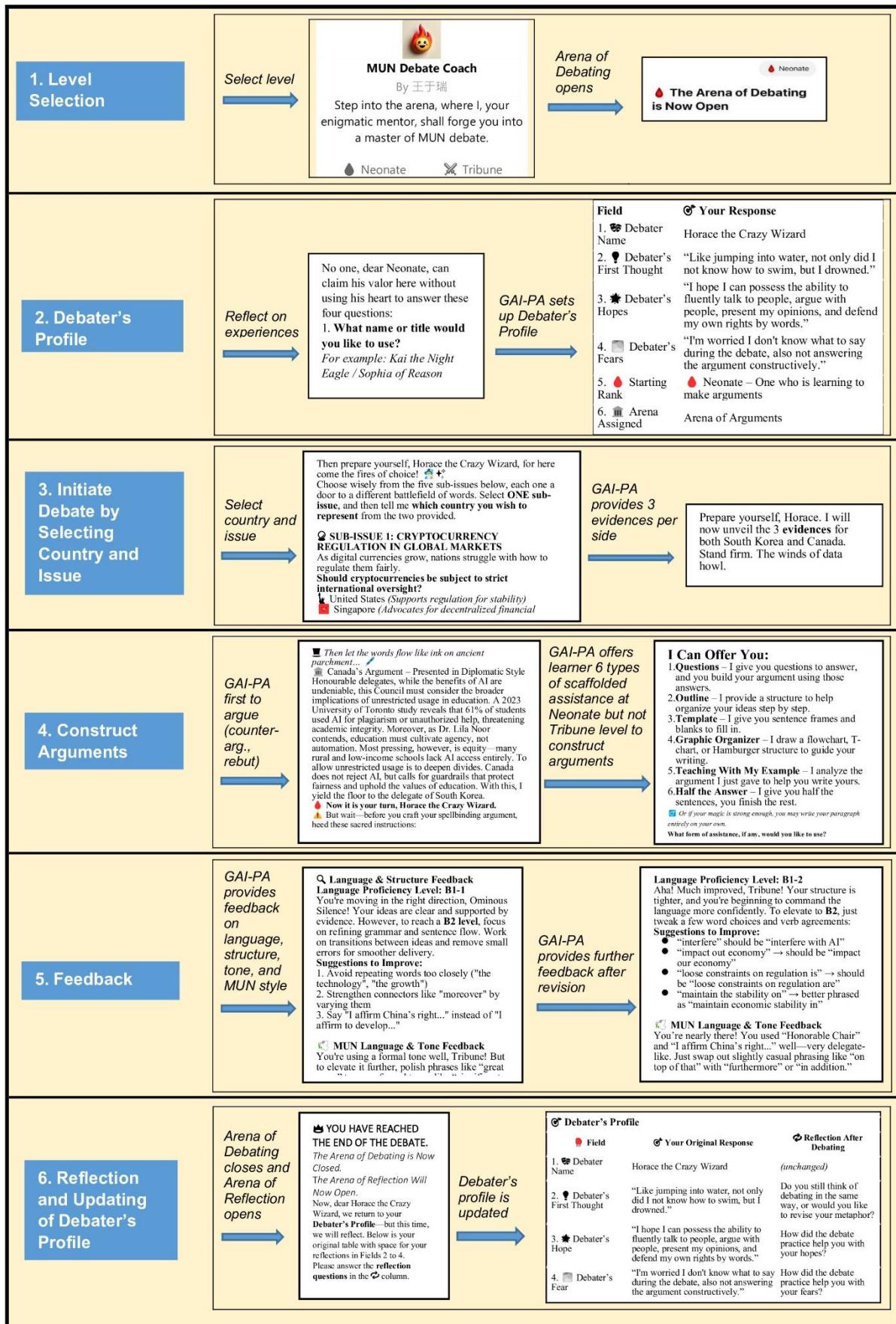


Figure 1. General Pedagogical Pathway of the GAI-PA

student-initiated dialogue to guide learning. The instructional experience followed 18 defined steps aligned with typical debate preparation, including role setup, argument construction, feedback seeking, and reflection.

Both the GAI-PA and the teacher-guided prompt use aligned with the 5 general principles outlined in the literature review for ensuring best practices in AI-based learning for EFL learners pursuing the higher intermediate English proficiency.

### 3.4 Data Analysis

For RQ1, each system's instructions were analyzed using constructivist grounded theory. Data was segmented by stage and collaboratively open-coded by two coders in iterative cycles. Open codes were then clustered to form larger conceptual categories (i.e., axial categories). These identified the systems' pedagogical functions. For RQ2, the pedagogical functions were then deductively applied to students' interactions on the systems. Additionally, each coded instance was rated for the success of learner uptake, which was operationally defined in the study as the extent to which a learner follows the intended instructional move (low demand) or acts meaningfully when given an opportunity to engage (high-demand), ultimately producing a desired interaction for that pedagogical function. Using a Likert scale with scores of 1 and 2 indicating poor uptake, 3 indicating moderate uptake, and 4 and 5 indicating successful uptake, each coded instance was graded and students' final scores were transformed into percentages. For the grounded theory analysis, deductive analysis of students' interactions, and rating of their interactions, the coders worked independently and then compared results, producing an inter-coder/rater reliability of 74%, 83%, and 71% respectively. Discrepancies were resolved through discussion.

## 4. Results

### 4.1 Pedagogical Functions of Systems

RQ1 results in Table 2 and 3 show the systems enacted distinct pedagogical functions.

Table 2. *Pedagogical Functions in GAI-PA Agent*

Pedagogical Functions	Definition	Examples from Instruction
1. Instructional Discipline	Strict pedagogical process to follow	<i>ChatGPT must follow all instructions exactly. Do not skip steps.</i>
2. Scaffolded Autonomy	Provides B1-B2 appropriate phased support	<i>Provide the 6 forms of assistance.</i>
3. Identity-Driven Motivation & Reflection	Anchors learning and reflection in personal journey	<i>Ask, "Use a metaphor to describe how you feel about debating."</i>
4. Immersive Role-Playing	Debate framed as RPG-like experience	<i>Say, "What name or title would you like to use?"</i>
5. Pedagogical Feedback System	Provides short but appropriate CEFR + MUN structured feedback	<i>Use 2-3 lines to determine and explain CEFR level according to framework provided.</i>
6. Authentic Debate Simulation	Implements realistic debate	<i>Say, "We will follow the official MUN turn sequence."</i>
7. Enforced Ethical AI Use	Enforces fact-checking AI and constructing own answers	<i>Do not provide the student with the answer to ensure independent learning.</i>

*Note: Pedagogical functions are categories from grounded theory analysis of instructions*

Table 2 shows the GAI-PA produced seven structured functions: *instructional discipline*, *scaffolded autonomy*, *identity-driven motivation and reflection*, *immersive role-playing*, *pedagogical feedback system*, *authentic debate simulation*, and *enforced ethical AI use*. The definitions ascribed to the pedagogical functions show that the system was grounded in CEFR alignment, identity building, gamified learning, adaptive support, and ethical AI use, fostering self-regulation, engagement, and responsibility.

In contrast, the teacher-guided prompt system, as illustrated in Table 3, yielded six functions: *instructional framing and role setup*, *self-regulated learning development*, *discourse construction scaffolding*, *feedback and revision cycle*, *authentic debate execution*, and *ethical AI use*. The definitions ascribed to its pedagogical functions show that the system supported learner agency, argument development, and ethical AI use and reflected a more flexible but cognitively demanding design requiring greater learner initiative.

Table 3. *Pedagogical Functions in Teacher-Guided Prompt Use*

Pedagogical Functions	Definition	Examples from Instruction
<b>1. Instructional Framing &amp; Role Setup</b>	Define setting	<i>Tell ChatGPT, “You are the EU, I am India.”</i>
<b>2. Self-Regulated Learning Development</b>	Reflect on learning process	<i>Ask ChatGPT, “Help me reflect on my goals.”</i>
<b>3. Discourse Construction Scaffolding</b>	Build arguments with models	<i>Use a prompt like ‘Show me a sample argument.’</i>
<b>4. Feedback &amp; Revision Cycle</b>	Revise using feedback	<i>Ask ChatGPT, “How can I improve the vocabulary to B2?”</i>
<b>5. Authentic Debate Execution</b>	Simulate real-life debate	<i>Tell ChatGPT, “Let’s debate a global issue.”</i>
<b>6. Ethical AI Use</b>	Fact-check AI and construct own answers	<i>Ask ChatGPT, “Please provide your sources.”</i>

*Note: Pedagogical functions are categories from grounded theory analysis of instructions*

The 7 pedagogical functions of the GAI-PA were merged and led to 3 emerging themes as shown in Table 4: *pedagogy by design*, which means that the system enacts instruction through a structured, rule-based system that guides learning; *learning as identity formation*, which means that the system immerses students in a journey of identity, metaphor, reflection, and motivation; and *enforced critical use of AI*, which means that the system scaffolds critical AI literacy, ensuring students are critical of the GAI’s answers and also engage in real learning.

Table 4. *Emerging Themes for Pedagogical Functions of GAI-PA*

Emerging themes	Underlying Categories/ Pedagogical Functions
<b>1. Pedagogy by Design</b>	Instructional discipline, scaffolded autonomy, pedagogical feedback system, authentic debate simulation
<b>2. Learning as Identity formation</b>	Identity-driven motivation & reflection, immersive simulation & role play
<b>3. Enforced Critical Use of AI</b>	Enforced ethical AI use

*Note: Emerging themes resulted from clustering related categories (pedagogical functions) during grounded theory analysis*

#### 4.2 Learner Uptake of Pedagogical Functions

For RQ2, Table 5 shows that learner uptake was generally high in the GAI-PA condition, with most functions exceeding 80% in the learner uptake. The strongest uptake occurred for *instructional discipline* and *authentic debate simulation*, where both low-demand

compliance and high-demand engagement were evident. For example, in the low-demand component of *instructional discipline*, learners consistently followed prompts like, “First, select your debate role and confirm,” with clear responses, for example, “I will be the Minister of Renewable Energy for my country.” In the high-demand component of *authentic debate simulation*, the Tribune stage invited multi-turn questioning—“Respond to the delegate’s argument using rhetorical devices we practiced earlier”—and learners not only produced rebuttals but extended the exchange with queries such as, “Would using an analogy here be persuasive enough, or should I try a contrasting statement?” Exceptions were the *pedagogical feedback system*, which showed only low-moderate uptake, and *enforced ethical AI use*, which achieved high-moderate uptake; in both cases, fewer learners moved beyond the initial instruction to sustained questioning.

In the teacher-guided prompt use condition, uptake was more variable. High-moderate uptake was recorded for *instructional framing & role setup*, where prompts like, “You are the EU; I am India,” reliably generated role-aligned openings such as, “As the EU, I propose a joint renewable energy fund.” However, several functions saw weaker learner uptake, particularly in their high-demand components. For *self-regulated learning development* and *authentic debate execution*, prompts like, “Help me reflect. What did I do well?” or “Let’s begin the official debate” sometimes resulted in minimal responses—“I spoke clearly”—with little follow-up questioning to deepen engagement. The lowest uptakes occurred for *discourse construction scaffolding*, *feedback & revision cycle*, and *ethical AI use*, where even with prompts such as, “Could you provide findable sources for the evidence you are using?”, learners often stopped after a single compliance turn without verifying or challenging the AI’s sources. These patterns suggest that while both systems supported low-demand uptake, the GAI-PA’s structured scaffolds more effectively stimulated the high-demand engagement behaviors critical to sustained interaction.

Table 5. *Uptake of Pedagogical Functions in GAI-PA and Teacher-Guided Prompt Use*

GAI-PA	Uptake	Teacher Guided Prompt Use	Uptake
1. Instructional Discipline	93%	1. Instructional Framing & Role Set Up	78%
2. Scaffolded Autonomy	88%	2. Self-Regulated Learning Development	63%
3. Identity-Driven Motivation & Reflection	82%	3. Discourse Construction Scaffolding	52%
4. Immersive Role-Playing	87%	4. Feedback & Revision Cycle	43%
5. Pedagogical Feedback System	67%	5. Authentic Debate Execution	63%
6. Authentic Debate Simulation	89%	6. Ethical AI Use	52%
7. Enforced Ethical AI Use	75%		

## 5. Discussion and limitations

This study investigated the pedagogical functions and learner uptake of two GAI-mediated systems—GAI-PAs and teacher-guided prompt use—for EFL debate training. The results extend previous research by offering a grounded comparison of how instructional functions are embedded and taken up in structured versus flexible AI-supported learning environments. Prior studies have shown that Model United Nations (MUN) fosters learner engagement through role-play and structured debate tasks (McIntosh, 2001; O’Dell et al., 2024), yet also creates anxiety and limits revision opportunities due to its real-time demands (Hirci & Peterlin, 2020; Liu & Sadler, 2003). By examining GAI-supported pre-debate training, our findings show how both systems help address these limitations—but in markedly different ways.

Previous studies found that the teacher-guided prompt model can improve content quality and instructional adaptability (Wang et al., 2023; Darmawansah et al., 2025). However, our results support concerns raised by Woo et al. (2024) and Darmawansah et al. (2025) that prompt quality is often inconsistent and cognitively demanding for learners without sufficient self-regulated learning strategies. Our grounded analysis revealed that while this model seeks to fosters learner agency and flexibility, it assumes students can independently manage instructional interactions, which may be unrealistic in EFL contexts marked by teacher-centered learning histories (Yuan, 2024).

In contrast, the GAI-PA system embedded a more structured, pedagogically guided experience. Its functions reflected current best practices in AI-assisted language learning (Chang et al., 2023; Khalil et al., 2024). Consistent with findings from AnatomyGPT and GamiflcA Edu (Collins et al., 2024; López-Galisteo et al., 2025), the GAI-PA's design allowed for pedagogical control that contributed to stronger and more consistent learner uptake. Importantly, the study highlights a novel contribution to the literature: that the format of AI instruction—whether fixed-sequence or prompt-based—shapes not only the delivery of pedagogical functions but also the learner's ability to engage with them. This has significant implications for the design of AI systems that aim to scaffold cognitively demanding tasks like debating in EFL settings.

This study, however, is limited by its small sample size drawn from two classes within the same college, which reduces the statistical power and limits the generalizability of the findings. The participants' similar institutional and proficiency backgrounds mean the results may not reflect the performance of EFL learners from more diverse educational contexts. Hence, while the qualitative analysis provides rich insights, caution should be exercised when interpreting the quantitative uptake differences and implementing the results of this study. The study could also benefit from examining the impacts of such interventions over a longer period of time to evaluate their sustainability and from investigating whether learners can actually transfer their skills, strategies and attitudes acquired through these interventions to real debating contexts.

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