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AI-Generated Content Tools and Chain of Thought: Revolutionizing Pragmatics and Translation Education for MTI Students

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Abstract: This conceptual study proposes a pedagogical framework that integrates Generative Artificial Intelligence tools (AIGC) and Chain-of-Thought (CoT) reasoning, grounded in the cognitive apprenticeship model, for the Pragmatics and Translation course within Master of Translation and Interpreting (MTI) programs. A key feature involves CoT reasoning exercises, which require students to articulate their step-by-step translation reasoning. This explicates cognitive processes, enhances pragmatic awareness, translation strategy development, and critical reflection on linguistic choices and context. Hypothetical activities exemplify its application, including comparative analysis of AI and human translations to examine pragmatic nuances, and guided exercises where students analyze or critique the reasoning traces generated by Large Language Models (LLMs). Ethically grounded, the framework positions AI as a supportive tool, thereby ensuring human translators retain the central decision-making role and promoting critical evaluation of machine-generated suggestions. Potential challenges, such as AI biases, ethical concerns, and overreliance, are addressed through strategies including bias-awareness discussions, rigorous accuracy verification, and a strong emphasis on human accountability. Future research will involve piloting the framework to empirically evaluate its impact on learners' pragmatic competence and translation skills, followed by iterative refinements to advance evidence-based translation pedagogy.

Keywords: AI-Generated Content (AIGC); Chain of Thought (CoT); Pragmatics and translation course; MTI students; Cognitive apprenticeship

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1. Introduction

Globalization necessitates skilled translators for effective cross-border communication, establishing pragmatic competence as a core priority MTI education. Yet challenges persist in adapting curricula to societal demands and improving pedagogical efficacy. The AI-driven digital transformation is shifting translation education from teacher-centered to learner-centered approaches, underscoring the need for pedagogical reforms. Current

instruction overemphasizes linguistic conversion at the expense of pragmatic adaptation, often resulting in contextually deficient translations. AIGC tools offer new pedagogical opportunities, such as draft generation, and should be positioned as collaborative references rather than substitutes for human decision-making [1]. Consequently, this study proposes an integrated AIGC-CoT framework for MTI Pragmatics and Translation, with theoretical foundations examined subsequently.

2. Theoretical foundations and core concepts

2.1. Pragmatics and translation

Pragmatics and translation are fundamentally interconnected. Both disciplines focus on conveying context-dependent meaning, shaped by situations and background knowledge, requiring translators to understand implicit meanings, literal ones, and intentions. Nida's pragmatic equivalence principle emphasizes that translation seeks to recreate the source text's communicative effect for the target audience, not just formal accuracy [2]. As translation involves cross-cultural mediation, it necessitates navigating implicit meanings and cultural presuppositions, acknowledging differing speech acts and norms. The MTI Pragmatics and Translation course thus explicitly teaches balancing linguistic precision with cultural-pragmatic adaptation, making explicit the underlying decision-making process.

2.2. Cognitive apprenticeship theory

Cognitive apprenticeship theory, derived from traditional apprenticeship, focuses on making experts' cognitive processes explicit, facilitating learners' progression from observation and imitation to independent problem-solving. It includes six key components: modeling, coaching, scaffolding, articulation, reflection, and exploration, transforming abstract thinking into visible steps, thereby addressing the limitations of implicit cognition in traditional teaching [3].

In translation teaching, it applies by deconstructing and transmitting translation thinking: teachers demonstrate pragmatic reasoning, use scaffolding to guide independent handling of complex texts [4]. Aligned with pragmatic competence development, it enhances context adaptation via articulation and reflection [5], shifting translation to process orientation. CoT reasoning operationalizes these two components in translation practice.

2.3. Chain-of-thought reasoning

Derived from large language model research, CoT reasoning breaks complex problems into sequential natural-language steps, initially fixing math logical gaps [6]. In translation, it requires explicit articulation of the full cognitive process from source comprehension (context analysis, cultural word handling, pragmatic inference) to target production, not just final outputs [7]. It externalizes implicit cognition for evaluation, fosters self-monitoring to reduce biases and intuition overreliance [8], enhances pragmatic awareness [9], and cultivates transferable frameworks, serving as a robust scaffold for pragmatic translation competence.

2.4. AIGC

Artificial Intelligence-Generated Content (AIGC) denotes a production method utilizing AI technologies, particularly machine learning models trained on massive datasets, to automatically create diverse digital content, including text, images, audio, and video, tailored to user needs [10]. Within translation pedagogy, AIGC serves as an auxiliary tool, providing draft translations, diverse inputs, and context simulations without supplanting human

expertise [11]. It complements static traditional resources like textbooks by offering dynamic generation [12], aids critical analysis of machine translation's pragmatic and cultural flaws, handles routine tasks to free students for higher-level decisions, and necessitates rigorous evaluation to preserve human agency and prevent overreliance [11].

3. Teaching framework design

3.1. Principles of framework design

This student-centered framework highlights translators' decision-making agency, using AI as an auxiliary tool for references, context simulation, and reasoning chain generation. It integrates CoT reasoning with cognitive apprenticeship, making decision steps explicit and traceable through a structured teaching-learning-assessment cycle. Emphasizing pragmatic equivalence, it focuses on context analysis, cultural adaptation, and intent transmission, supported by goals, tools, and evaluation.

3.2. Core components of the framework

3.2.1. Teaching objectives

(1) Short-term objectives: Master the CoT reasoning framework (context analysis →intent identification →strategy selection →effect verification), break translation tasks into logical decision steps, and establish structured reasoning pathways.

(2) Long-term objectives: Develop cross-cultural pragmatic sensitivity to perceive linguistic differences in cultural connotations and communicative intentions; cultivate critical use of AI tools to identify and revise machine translation limitations in cultural adaptation and pragmatic transmission.

3.2.2. Evaluation

The framework employs a dual evaluation system (60% formative, 40% summative). Formative assessment emphasizes complete reasoning logs, logical strategy selection, and critical reflection on AI outputs. Summative assessment evaluates pragmatic equivalence in final translations.

3.3. Phased teaching process

This framework operationalizes cognitive apprenticeship through six interconnected stages. In Modeling, instructors deconstruct expert translation processes into core steps (context analysis, strategy selection, effect verification), contrasting AI outputs with human reasoning to demonstrate professional judgment's necessity. Coaching involves students drafting with AI, documenting evaluations, and revisions under teacher guidance. Scaffolding provides progressive support from simple to complex tasks, reducing assistance as competence develops. Articulation requires students to present work, clarify reasoning (including AI critique), and engage in discussions. Reflection prompts analysis of reasoning logs and cognitive progress for metacognitive development. Finally, Exploration entails independent management of complex projects using AI, culminating in a Translation Strategy Report with minimized teacher input. These stages constitute a cohesive cycle fostering CoT mastery, deeper translation understanding, and enhanced pragmatic-technical competence.

4. Hypothetical teaching activities

4.1. Core principles of activity design

Activity design follows the framework with three principles: explicit CoT reasoning, human-AI collaboration,

and phased progression. All tasks require documenting translation decisions in reasoning logs to ensure traceable, optimizable thinking. AI tools serve as references, with students critically revising outputs to achieve pragmatic equivalence. Task difficulty increases progressively, aligning with the six cognitive apprenticeship stages, to foster independence and strategic decision-making.

4.2. Key activities

To translate the theoretical framework and phased process into concrete classroom practice, a series of hypothetical teaching activities are designed, each closely aligned with the core principles and specific stages outlined earlier.

(1) Activity 1. Chain-of-thought-AI comparative analysis

Students compare AI and human translations of culturally or socially loaded texts, analyzing AI pragmatic errors and human revision via logs. Instructors demonstrate comparative methods and provide tools (e.g., cultural contrast checklists) to build critical perspectives.

(2) Activity 2. Application of chain-of-thought in contextual translation

Using social dialogues or ads, groups translate collaboratively. Initially guided by instructors, then independently evaluating AI suggestions, students submit revised translations with logs explaining rejected AI outputs and context-adaptive strategies. Group discussions (bridging scaffolding and articulation stages) reveal reasoning flaws, reinforcing that pragmatic equivalence outweighs literal translation.

(3) Activity 3. Multimodal pragmatic adaptation

Students translate texts with visual symbols, referencing AI versions. Logs document text-visual semantic relationships, AI's multimodal adaptation gaps, and human revision strategies. Aligned with articulation and exploration stages, students independently coordinate text-visual pragmatics with minimal instructor guidance.

(4) Activity 4. Translation based on chain-of-thought

Students independently select real-world multimodal texts, integrating CoT and AI critique. They submit a strategy report with reasoning logs, AI evaluations, version comparisons, and final selection rationale (corresponding to reflection and exploration stages). They refine individual pragmatic handling methods.

These activities foster structured reasoning, deepen understanding of AI as an aid, and develop competence combining pragmatic sensitivity with critical tech evaluation.

5. Potential challenges and response strategies

Integrating AIGC tools and CoT reasoning into translation pedagogy may lead to conflicts between technology and educational objectives. AI outputs can reflect biases or errors stemming from cultural stereotypes or incomplete training data, which can be addressed through in-class analysis, CoT log reviews, and fostering accountability. To avoid over-reliance, students should justify AI rejections in logs, while assessments should prioritize reasoning processes over final outputs. Ethical issues (e.g., copyright) require transparency, awareness training, and input restrictions. Teacher development through case studies and institutional support ensures effective and responsible implementation, ultimately enhancing translation education quality.

6. Summary

This framework integrates cognitive apprenticeship with AI and CoT reasoning to enhance MTI students' pragmatic and strategic translation competence. It's six stages externalize professional translators' tacit cognition, scaffolding mastery of structured reasoning (context analysis →intent identification →strategy selection →effect verification). AI functions as a supportive tool; students critically evaluate outputs in CoT logs, complementing human judgment while preserving agency and cross-cultural sensitivity, ensuring humanistic integrity.

7. Conclusion

The framework innovatively integrates generative AI with CoT training for MTI pragmatic and translation instruction, addressing the dual needs of technological empowerment and competence preservation in the AI era. By mandating CoT logs to document decision-making, it enhances reasoning transparency, addressing the traditional focus on outcomes over processes, and makes pragmatic adaptation competence traceable and assessable. It clarifies AI's boundaries, providing a practical model to balance technical efficiency and translation quality.

8. Limitations and future directions

The framework is currently conceptual and unvalidated. Future research will:

(1) Conduct small-scale pilots to collect data on CoT report quality, pragmatic error correction rates, AI critique depth, and classroom observations to evaluate outcomes;

(2) Refine the framework based on pilot results (e.g., adjusting AI integration timing, improving CoT evaluation criteria);

(3) Explore cross-domain applicability, extending to fields like literary and legal translation or other professional contexts requiring cross-cultural pragmatics.

The goal is to establish an empirically supported, replicable translation education model, offering theoretical and practical foundations for professional talent development.

Disclosure statement

The author declares no conflict of interest.

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