The Intelligent Communicative Language Teaching Model with Artificial Intelligence for English as a Foreign Language (EFL) Learners

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***Abstract*—This study aims to develop and evaluate an intelligent communicative language teaching model that integrates artificial intelligence for English as a Foreign Language learners. The research employed a developmental design comprising three phases: synthesizing relevant literature, designing the model, and conducting an expert evaluation. The proposed model consists of four main components: inputs, including objectives, content, learners, instructors, and artificial intelligence tools; processes, integrating communicative language teaching steps with speech recognition technology; evaluation, covering language skills, achievement, and satisfaction; and feedback for continuous improvement. Two research instruments were used: the intelligent communicative language teaching model and an expert evaluation form. Nineteen specialists in educational technology, language teaching, and artificial intelligence assessed the model using purposive sampling. The results showed that the model was rated at the highest level of appropriateness across all components, indicating strong feasibility for implementation. As this study represents a developmental stage, the evaluation focused on expert validation to ensure reliability before classroom application. Future research should extend to empirical testing with learners to confirm effectiveness.**

***Keywords*—communicative language teaching, artificial intelligence, speech recognition, English as a Foreign Language (EFL), English language skills**

I. Introduction

English proficiency has become a crucial skill in the twenty-first century, shaping individuals' capacity to participate in international communication, education, and professional mobility. For learners in countries where English is a foreign language, effective language instruction is essential to foster communicative competence and global citizenship. In Thailand, however, English proficiency remains critically low. According to recent international benchmarks, Thai learners consistently perform at a very low level, reflecting persistent challenges in speaking and listening fluency. This situation underscores the urgent need for pedagogical innovation that addresses learners' real-world communicative needs rather than focusing solely on grammar or rote memorization [1].

Communicative Language Teaching (CLT) has been widely recognized as an effective approach for promoting authentic communication. It emphasizes the meaningful use of language in context and seeks to enhance fluency and interaction skills [2]. Yet despite its pedagogical strengths, CLT has limitations. In particular, it often lacks mechanisms to provide learners with immediate feedback during communication tasks. As a result, learners may continue to use incorrect forms or ineffective strategies, which undermines their confidence and slows their progress. On the other hand, Artificial Intelligence technologies, particularly Automatic Speech Recognition (ASR), have emerged as powerful tools to provide real-time feedback on language production. While ASR has been applied in language learning, its use is often restricted to pronunciation practice rather than broader communicative contexts [3].

This disconnect reveals a critical gap in the field: while CLT supports authentic communication, it does not adequately address the need for immediate feedback, and while ASR provides real-time support, it is not typically integrated into communicative pedagogy. Bridging this gap requires an instructional model that meaningfully integrates CLT with AI technologies to strengthen learner fluency, interactivity, and confidence. Such integration would align pedagogical principles with technological advancements, offering a more dynamic and supportive environment for language learners [4].

Addressing this gap is particularly significant for English as a Foreign Language (EFL) contexts like Thailand, where low proficiency has long constrained academic and professional opportunities [5]. Developing an intelligent communicative language teaching model that embeds AI technology into communicative pedagogy may provide a pathway to more effective language instruction. By combining the strengths of CLT and ASR, such a model could offer learners opportunities for authentic practice with immediate, personalized feedback, thereby improving language outcomes and learner confidence [6].

The aim of this study is therefore to develop and evaluate an intelligent communicative language teaching model that integrates artificial intelligence for EFL learners. Specifically, the study synthesizes relevant literature to establish the model's foundation, designs the model to integrate communicative pedagogy with ASR technology, and evaluates its appropriateness through expert review [7]. The findings are expected to contribute both theoretically and practically: theoretically, by extending the scope of AI-assisted language teaching beyond pronunciation; and practically, by offering a structured framework that educators may adapt and implement in diverse classroom contexts.

II. Literature Review

A. Communicative Language Teaching

Communicative Language Teaching (CLT) is an approach to language teaching that prioritizes meaningful communication and the practical use of language over rote memorization of grammatical rules. Emerging in the 1970s in North America and Europe, CLT has since become one of the most influential methods in the field of English language teaching, particularly in Europe [8]. It focuses on enabling learners to communicate effectively and appropriately in real-life situations by integrating all aspects of language competence within classroom practices.

The theoretical foundation of CLT was influenced significantly by Dell Hathaway Hymes, who introduced the concept of communicative competence as a critique of Chomsky's narrow focus on linguistic competence alone. Hymes proposed that knowing a language involves more than mastering its grammatical rules; it also includes knowing how to use language appropriately in different social contexts [9]. Communicative competence thus reflects a speaker's ability to produce and interpret messages effectively and appropriately according to situational demands.

Canale and Swain [10] expanded on Hymes' concept by identifying four key dimensions of communicative competence. The first dimension is linguistic or grammatical competence, which refers to knowledge of the language code itself. This includes understanding vocabulary, word formation rules, sentence structure, and pronunciation. Linguistic competence forms the foundation for constructing grammatically correct sentences, enabling learners to decode and encode messages with structural accuracy. The second dimension is sociolinguistic competence, which involves the ability to use language appropriately within varying social and cultural contexts. This competence encompasses an understanding of language functions, registers, and sociocultural norms, such as knowing how to express politeness, gratitude, or disagreement in culturally appropriate ways. It also includes awareness of contextually suitable vocabulary and expressions based on interlocutor roles, relationships, and communication settings, thereby facilitating effective and respectful interaction. The third dimension is discourse competence, which focuses on the ability to organize sentences and utterances into coherent and cohesive spoken or written texts. It entails understanding how to connect ideas logically and smoothly, using cohesive devices to maintain textual integrity. For example, discourse competence allows speakers or writers to structure narratives, essays, or letters in ways that ensure clarity, continuity, and logical flow, thus enhancing overall comprehensibility and communicative effectiveness. The fourth dimension is strategic competence, referring to the ability to employ verbal and non-verbal strategies to overcome breakdowns in communication. This includes skills such as paraphrasing, using synonyms, elaborating, asking for clarification, or employing gestures and facial expressions to support verbal communication. Strategic competence enables learners to maintain conversational flow despite gaps in linguistic knowledge, ensuring that communicative goals are achieved even in challenging communicative circumstances.

Overall, CLT has transformed English language teaching by shifting the focus from language as a set of abstract rules to language as a tool for social interaction and real-world communication. Its emphasis on communicative competence prepares learners to navigate diverse communicative situations effectively, which is essential in an increasingly globalized world where English serves as a primary medium for international communication.

B. Artificial Intelligence in Language Education

Artificial Intelligence (AI) has emerged as a transformative technology in various fields, including education. The foundational concept of AI was first proposed by Alan Turing, a mathematician who questioned whether machines could think, leading to the development of the Turing Test as a method for assessing machine intelligence [11]. AI refers to the capability of computer systems to perform tasks that typically require human intelligence, such as learning, reasoning, problem-solving, perception, and natural language understanding. In the context of education, AI has been widely adopted to enhance learning experiences, personalize instruction, and improve educational outcomes.

In language education, AI can be categorized into two main approaches: knowledge-based systems and computational intelligence [12]. Knowledge-based systems rely on explicit knowledge encoded into the system, which is derived from expert knowledge and empirical data. This approach involves building databases and knowledge repositories that AI systems can use to provide instructional feedback, explanations, and problem-solving guidance to learners. For example, Intelligent Tutoring Systems (ITS) use knowledge-based AI to deliver adaptive instructional content, evaluate learner performance, and provide targeted remediation based on predefined linguistic rules and learning objectives.

On the other hand, computational intelligence focuses on creating models that approximate solutions for complex problems where logical certainty is unattainable. It leverages machine learning algorithms, neural networks, and data-driven techniques to recognize patterns, make predictions, and generate output based on input data. In language education, computational intelligence is applied in Natural Language Processing (NLP) tasks, such as automated essay scoring, grammar checking, machine translation, and speech recognition. These applications enable AI systems to process large volumes of linguistic data and provide real-time feedback, facilitating learner autonomy and accelerating language acquisition [13].

AI applications in language teaching have revolutionized how learners interact with language learning materials. For instance, Natural Language Processing (NLP) enables AI-powered chatbots to engage learners in authentic conversational practice, while speech recognition technologies assess pronunciation and fluency in real time. Machine translation tools assist learners in understanding and producing target language texts by offering contextual translations and usage examples. Furthermore, AI-based writing assistants analyze sentence structure, grammar, and style to provide detailed suggestions for improving learners' writing skills. These AI technologies create interactive, personalized, and adaptive learning environments that align

with communicative language teaching principles [14].

The integration of AI in communicative language teaching offers significant pedagogical benefits. AI systems can provide immediate and individualized feedback to learners, fostering self-regulated learning and promoting confidence in language use. They also enable teachers to track learner progress systematically and identify areas requiring additional support. By incorporating AI technologies into language instruction, educators can create dynamic learning experiences that support the development of communicative competence across listening, speaking, reading, and writing skills. Consequently, AI serves as a powerful tool for enhancing the effectiveness and efficiency of language education in diverse learning contexts.

C. Speech-to-Text Technology

Speech-to-text technology, also known as Automatic Speech Recognition (ASR), is a field within artificial intelligence and computational linguistics that focuses on converting spoken language into written text. This technology operates by analyzing audio signals, detecting speech patterns, and transcribing them into textual form with varying degrees of accuracy depending on system sophistication. ASR has become an integral component of modern digital applications, including virtual assistants, transcription services, and language learning platforms, due to its ability to bridge the gap between oral and written communication efficiently [15].

The fundamental process of speech recognition begins with acoustic preprocessing, where speech input is converted into a sequence of acoustic parameters. This step involves feature extraction, transforming raw audio waveforms into representations suitable for further analysis by the system. Acoustic preprocessing reduces the complexity of speech signals while retaining essential phonetic and linguistic information, facilitating the subsequent stages of recognition by enhancing clarity and reducing noise interference [16].

The next stage involves the pronunciation model, which maps the acoustic features to linguistic units such as phonemes or syllables. This model contains information about how words are pronounced, enabling the system to link input sounds with potential word candidates accurately. Pronunciation models are built from large datasets of spoken language, encompassing variations in accent, intonation, and pronunciation patterns, thereby increasing the robustness and flexibility of the recognition system [17].

Following this is the acoustic model, which establishes the statistical relationships between the extracted acoustic features and the phonetic units of a language. Acoustic models are typically developed using machine learning algorithms such as Hidden Markov Models (HMMs) or Deep Neural Networks (DNNs) trained on extensive corpora of speech data. These models allow the system to decode and recognize speech sounds by predicting the most probable phonetic sequences corresponding to the audio input [18].

The language model constitutes another critical component of speech recognition systems. It predicts the most likely sequence of words based on the syntactic and semantic context of the language. Language models utilize probabilistic methods to determine word order and grammatical coherence, significantly enhancing transcription accuracy, especially in continuous speech recognition. Advanced language models, such as those based on Recurrent Neural Networks (RNNs) or transformers, can process contextual dependencies across long sequences, improving recognition performance in complex spoken language tasks [19].

The final stage is the decoder, which integrates the outputs from the acoustic, pronunciation, and language models to produce the most probable textual transcription of the speech input. The decoder combines acoustic probabilities with linguistic probabilities to determine the best word sequence, effectively converting spoken utterances into coherent written sentences. This integration ensures that the recognition system not only identifies individual sounds accurately but also generates meaningful and grammatically correct output [20].

In the context of language education, speech-to-text technology offers substantial pedagogical advantages. It enables real-time assessment of learners' pronunciation, fluency, and accuracy, providing immediate feedback that facilitates self-correction and improvement. Additionally, ASR supports listening and speaking practice by allowing learners to compare their spoken output with target language norms. The integration of speech recognition in communicative language teaching fosters interactive and engaging learning environments, enhancing learners' confidence and competence in using the target language for effective communication.

D. English Language Skills for Communication

English language skills for communication are fundamental competencies that enable learners to effectively exchange information, ideas, and emotions in various social and professional contexts. These skills encompass four primary domains: listening, speaking, reading, and writing, each of which plays a critical role in fostering comprehensive communicative competence. Mastery of these skills is essential for English as a Foreign Language (EFL) learners to participate successfully in real-world interactions and achieve their academic, social, and occupational goals [21].

Listening is the receptive skill that involves the ability to accurately perceive, interpret, and process spoken language input. Effective listening requires not only auditory perception but also cognitive processes such as decoding sounds, understanding vocabulary and grammar, and interpreting contextual cues like intonation and stress. For EFL learners, developing listening skills is crucial for comprehending lectures, conversations, and multimedia materials in English, enabling them to respond appropriately and engage in meaningful communication. Challenges in listening often arise due to variations in accents, speech rate, and unfamiliar vocabulary, making targeted training and authentic practice necessary components of language instruction [22].

Speaking is an active productive skill that encompasses the ability to articulate thoughts, ideas, and feelings verbally in a coherent and contextually appropriate manner. Proficient speaking skills include accurate pronunciation, appropriate use of grammar and vocabulary, fluency, and the capacity to manage conversational strategies such as turn-taking, repairing communication breakdowns, and adjusting

language to suit different interlocutors. In communicative language teaching, speaking is often prioritized because it directly reflects learners' ability to use English as a tool for social interaction. For EFL learners, gaining confidence and competence in speaking fosters not only language proficiency but also motivation and willingness to participate in diverse communicative situations [23].

Reading, another receptive skill, involves decoding and comprehending written texts of various genres and complexities. Effective reading requires the integration of linguistic knowledge, such as vocabulary and syntax, with higher-order cognitive abilities like inference, summarization, and critical analysis. Reading skills enable EFL learners to access information, expand their knowledge, and develop cultural awareness, which are all integral to academic success and lifelong learning. Additionally, reading provides exposure to language structures and usage patterns that support overall language acquisition. Developing reading strategies, such as skimming and scanning, is essential to enhance learners' efficiency and comprehension in processing different types of texts [24].

Writing, as a productive skill, refers to the capacity to convey meaning through written language in a clear, coherent, and organized manner. Writing competence involves mastery of spelling, grammar, punctuation, and vocabulary, as well as the ability to structure ideas logically and adapt the style and register according to the intended audience and purpose. For EFL learners, writing serves not only as a means of communication but also as a tool for reflection and consolidation of language knowledge. Effective writing instruction often emphasizes process-oriented approaches, including drafting, revising, and editing, which help learners develop autonomy and improve the quality of their written output [25].

The integration of these four language skills is vital in achieving communicative competence, as real-life communication typically requires simultaneous or sequential use of listening, speaking, reading, and writing. In the context of English language education, a balanced and interactive approach to developing these skills supports learners' holistic language development and prepares them to meet the demands of global communication. Furthermore, the advent of digital technologies and artificial intelligence tools has expanded opportunities for practicing and assessing these skills in authentic and adaptive learning environments, enhancing learner engagement and outcomes.

III. Research Objectives and Hypotheses

This research aims to develop an intelligent communicative language teaching model incorporating artificial intelligence to enhance English language learning for EFL learners. The conceptual framework of this study involves the integration of the communicative language teaching process with AI technology and a speech-to-text module, aiming to improve English language skills and academic performance as shown in Fig. 1. The specific objectives of this study are as follows:

1) To synthesize the processes involved in designing an intelligent communicative language teaching model with artificial intelligence for English as a Foreign Language (EFL) learners.
2) To develop an intelligent communicative language teaching model with artificial intelligence tailored for EFL learners.
3) To evaluate the appropriateness of the developed intelligent communicative language teaching model with artificial intelligence for EFL learners.

A. Research Hypotheses

1) the synthesis of relevant literature will yield a comprehensive set of components for the model,
2) the design of the intelligent CLT model with AI will be judged highly appropriate by experts, and
3) the evaluation phase will confirm the model's suitability for EFL contexts.

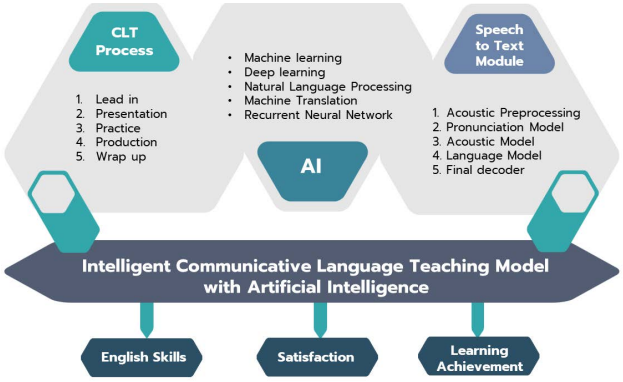

Fig. 1. Conceptual framework of the intelligent communicative language teaching model with AI for EFL.

IV. Research Methodology

This study employed a developmental research design to synthesize, design, and evaluate an intelligent communicative language teaching model incorporating artificial intelligence for English as a Foreign Language (EFL) learners.

A. Research Design

This study employed a developmental research design comprising three phases. The first phase involved synthesizing theories and related literature to identify the essential components and processes required for designing an intelligent communicative language teaching model incorporating artificial intelligence. The second phase focused on developing the model based on the synthesis results to support English as a Foreign Language (EFL) learners. The third phase entailed evaluating the appropriateness of the developed model through expert assessment to ensure its validity and applicability in educational contexts. The design of this study draws upon established developmental research frameworks, particularly those proposed by McKenney and Reeves [26], which provide methodological rigor for the systematic processes of synthesis, design, and evaluation in educational model development.

B. Research Instruments and Data Collection

The participants in this research were nineteen experts selected through purposive sampling based on their expertise in educational technology, English language teaching, instructional design, information technology, and artificial intelligence, with a minimum of five years of relevant experience. Purposive sampling was chosen because it is

particularly suitable for developmental research where expert validation is required. This aligns with theoretical recommendations for model development studies that rely on expert judgment rather than random sampling. Two main research instruments were used: (1) the intelligent communicative language teaching model with artificial intelligence, developed during the study, and (2) an evaluation form designed to assess the appropriateness of the developed model. The evaluation form covered components related to the model's inputs, processes, outputs, and feedback mechanisms. The rubric used was adapted from CEFR standards and validated through expert review to ensure reliability. Specifically, the CEFR descriptors for speaking and listening were adapted to focus on communicative competence in EFL contexts, with modifications to emphasize accuracy, fluency, interaction, and pronunciation in task-based activities. Items related to academic writing were excluded to maintain alignment with the study objectives. To ensure validity, the adapted rubric was reviewed by five language assessment specialists to confirm content relevance and construct coverage. Reliability was further supported through inter-rater agreement analysis conducted on a pilot sample, which demonstrated a high level of consistency (Cohen's kappa = 0.82). These steps ensured that the rubric maintained both theoretical alignment with CEFR and contextual suitability for the study's goals.

C. Data Analysis

The data was analyzed using quantitative descriptive statistics. Mean scores and standard deviations were calculated to determine the level of appropriateness of each component of the model as assessed by experts. The interpretation was based on a five-point Likert scale, are shown in Table 1.

Table 1. Range of average scores and interpretation of results

Range of Average Score	Interpretation of Appropriateness
4.50–5.00	Highest level of suitability
3.50–4.49	High level of suitability
2.50–3.49	Moderate level of suitability
1.50–2.49	Low level of suitability
0.00–1.49	Lowest level of suitability

V. Results

A. Results of Process Synthesis

The synthesis of theories, literature, and relevant research identified two key integrated processes for the development of the intelligent communicative language teaching model with artificial intelligence. The first is the communicative language teaching process, which includes six instructional steps: register, pretest, lead-in, practice, wrap-up, and posttest. The second is the speech recognition technology process, consisting of five stages: acoustic preprocessing, pronunciation model, acoustic model, language model, and final decoder. These two processes are designed to work collaboratively to enhance learners' communicative competence through interactive and technology-supported instruction, as shown in Table 2.

Table 2. Results of the synthesis of the intelligent communication language teaching process

CLT Process	AI Technology (Speech to Text)	Speech to Text process	Reference
1. Register	- Machine Learning - Deep Learning - NLP - Machine Translation - RNN	- Acoustic Preprocessing - Pronunciation Model - Acoustic Model - Language Model - Final decoder	[27–29]
2. Pretest			[30, 31]
3. Lead in			[32, 33]
4. Practice			[34–36]
5. Wrap up			[37, 38]
6. Posttest			[39, 40]

B. Research of Model Development

The development of the intelligent communicative language teaching model with artificial intelligence for EFL learners was based on the synthesis of theories, concepts, and related literature. The model comprises four main components, as shown in Fig. 2.

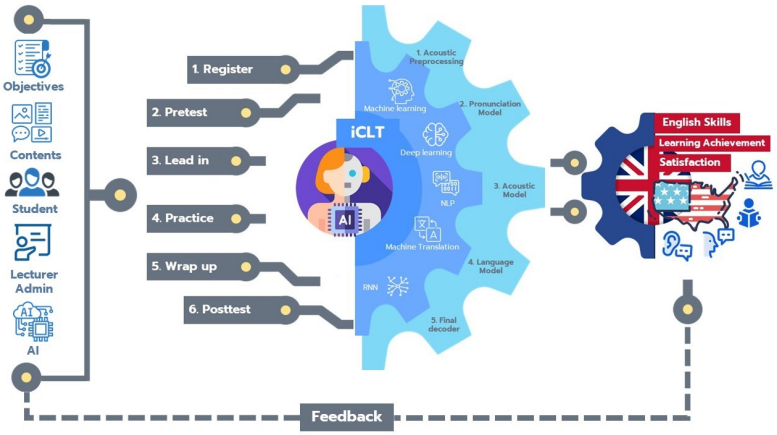

Fig. 2. The intelligent communicative language teaching model with artificial intelligence for EFL learners.

The input component defines the objectives focused on enhancing learners' communicative competence in English, outlines instructional content aligned with learners' needs, and specifies the roles of students and lecturers or administrators. Additionally, it incorporates artificial intelligence, particularly speech recognition technology, as a tool to support interactive and effective language learning.

The process component integrates two sub-processes: the communicative language teaching process and the speech recognition technology process. The communicative

language teaching process consists of six instructional steps: register, pretest, lead-in, practice, wrap-up, and posttest, which guide learners systematically through language learning activities. The speech recognition technology process includes five stages: acoustic preprocessing, pronunciation model, acoustic model, language model, and final decoder, enabling real-time speech-to-text conversion and pronunciation analysis to support learners' speaking and listening skills.

The evaluation component consists of three aspects: assessment of learners' English language skills using rubric scoring aligned with CEFR standards, measurement of academic achievement through pretest and posttest comparisons, and evaluation of learner satisfaction with instructional activities and technology use.

The feedback component provides information to instructors or administrators to review, adjust, and improve instructional content, teaching methods, and technological integration. This ensures that teaching and learning activities remain aligned with objectives and responsive to learners' needs for continuous improvement.

C. Results of Model Evaluation

Table 3. Evaluation of the suitability of an intelligent communication language teaching model using artificial intelligence for English as a foreign language learners

Assessment Items	Results		Satisfaction Level
	$\bar{x}$	S.D.	
1. Input			
1.1 Objectives	4.73	0.60	Highest
1.2 Contents	5.00	0.00	Highest
1.3 Student	5.00	0.00	Highest
1.4 Lecturer Admin	4.84	0.46	Highest
1.5 Artificial intelligence	5.00	0.00	Highest
Overall input	4.91	0.21	Highest
2. Process			
2.1 Register	5.00	0.00	Highest
2.2 Pretest	4.78	0.42	Highest
2.3 Lead in	5.00	0.00	Highest
2.4 Practice	5.00	0.00	Highest
2.5 Wrap up	5.00	0.00	Highest
2.6 Posttest	4.78	0.42	Highest
2.7 Speech recognition technology process	5.00	0.00	Highest
Overall process	4.96	0.08	Highest
3. Output			
3.1 English language skills	4.67	0.47	Highest
3.2 Learning achievement	4.78	0.42	Highest
3.3 Learner Satisfaction	4.56	0.50	Highest
Overall output	4.67	0.46	Highest
4. Feedback	4.78	0.42	Highest
Total	4.83	0.29	Highest

The evaluation of the developed intelligent communicative language teaching model with artificial intelligence for EFL learners was conducted by seven experts specializing in educational technology, English language teaching, instructional design, information technology, and artificial intelligence. The evaluation focused on four components: input, process, evaluation, and feedback, as shown in Table 3 The results showed that the model was rated at the highest level of appropriateness overall, with a mean score of 4.83 and a standard deviation of 0.29. Specifically, the input component received a mean score of 4.91 (SD = 0.21), indicating its objectives, content, student roles, lecturer roles, and AI integration were highly appropriate. The process component received the highest mean score of 4.96 (SD = 0.08), reflecting expert agreement on the effectiveness of integrating communicative language teaching steps with speech recognition technology stages. The evaluation component received a mean score of 4.67 (SD = 0.46), showing high appropriateness in assessing English skills, academic achievement, and learner satisfaction. Lastly, the feedback component received a mean score of 4.78 (SD = 0.42), indicating experts' strong agreement on its usefulness for instructional improvement.

In addition, the experts' evaluation of the suitability of the intelligent communicative language teaching model using artificial intelligence for English as a foreign language learners in terms of application yielded a mean score of 4.93 with a standard deviation of 0.19, as shown in Table 4 This result indicates that the experts considered the model to be highly appropriate and feasible for implementation in real-world English language teaching contexts to effectively enhance learners' communicative competence.

These results indicate that the developed model is highly appropriate for application in enhancing English communication skills among EFL learners and can be effectively implemented in instructional settings to support learners' communicative competence development.

Table 4. Evaluation of the suitability of an intelligent communication language teaching model using artificial intelligence for English as a foreign language learners (in terms of application)

Assessment Items	Results		Satisfaction Level
	$\bar{x}$	S.D.	
1. The suitability of applying an intelligent communication language teaching model using artificial intelligence for English as a foreign language learners to develop a platform	5.00	0.00	Highest
2. Suitability of Artificial Intelligence-Based Communication Language Teaching Models for English as a Foreign Language Learners	4.86	0.38	Highest
Total	**4.93**	**0.19**	**Highest**

VI. Discussion and Conclusion

The purpose of this research was to develop an intelligent communicative language teaching model incorporating artificial intelligence for English as a Foreign Language (EFL) learners and to evaluate its appropriateness for enhancing communicative competence. The results confirmed that the developed model is highly appropriate in all assessed components, including input, process, evaluation, feedback, and application in instructional settings. The synthesis of theories and literature identified two key processes communicative language teaching and speech recognition technology that were integrated to create an intelligent instructional model. This integration aligns with previous studies emphasizing that communicative language teaching is effective for developing learners' speaking and listening skills by promoting real-world communication practice [41], while artificial intelligence, particularly speech-to-text technology, enhances language learning by providing immediate and personalized feedback [42].

The development of the model addressed the limitations of traditional language teaching approaches, which often lack

interactive technological integration. By incorporating AI speech recognition into communicative language teaching steps, the model allows learners to practice pronunciation and speaking with real-time feedback, fostering greater learner autonomy and confidence in communication. This finding is consistent with studies by Tajik [43] and Wei [44], who reported that AI-supported language learning environments improve learners' speaking proficiency and motivation through interactive and adaptive learning experiences.

The expert evaluation results showed that all components of the model were rated at the highest level of appropriateness. Notably, the process component received the highest mean score, indicating strong expert agreement on the model's potential to enhance learning outcomes through its systematic integration of teaching activities and AI technology. Additionally, the evaluation of the model's applicability indicated its feasibility for implementation in real-world instructional contexts. This supports the notion that technology-enhanced language teaching models can be effectively integrated into EFL classrooms to bridge the gap between theoretical knowledge and practical communication skills [45].

Beyond descriptive statistics, the high ratings are consistent with previous studies confirming that AI-supported CLT environments foster confidence and fluency. Expert qualitative comments also highlighted the practicality of integrating speech recognition into CLT, underscoring its pedagogical relevance. In addition, by clarifying the scope of the rubric adaptation from CEFR and conducting both expert validation and inter-rater reliability checks, the evaluation instruments were strengthened to ensure trustworthy findings. This methodological refinement enhances the credibility of the study outcomes and provides a rigorous foundation for future empirical classroom implementation.

It is important to note that this is a developmental research study evaluated only by experts, without empirical testing in real classroom contexts. The reliance on expert validation is justified at this stage, but future research should involve classroom implementation to establish stronger evidence of effectiveness.

Overall, this study contributes to the field of language education by presenting an innovative instructional model that combines communicative language teaching theory with artificial intelligence applications. The model offers practical implications for instructional designers and educators aiming to enhance EFL learners' communication skills through technology-supported, interactive, and learner-center teaching approaches.

Conflict of Interest

The authors declare no conflict of interest.

Author Contributions

Siriluk Phuengrod conceptualized the research topic, conducted the comprehensive literature review, synthesized relevant information, analyzed the evaluation results, and was responsible for writing the entire manuscript, including drafting the introduction, methodology, results, and discussion sections. Pinyaphat Tasatanattakool managed the manuscript formatting to comply with the journal's specific requirements and oversaw the submission process. Pallop Piriyasurawong provided consultation throughout the research process, offering insights and guidance on key aspects of the study. All authors reviewed and approved the final version of the manuscript.

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