

CRRU “FANG KRU” Model to Promote Thai Language Listening Skills of Ethnic Student Teachers

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ABSTRACT

The purposes of this study were to (1) develop the CRRU “FANG KRU” Model to enhance Thai listening skills among ethnic student teachers, (2) examine the effectiveness of the CRRU “FANG KRU” Model, and (3) evaluate the development process of the model. The participants were 20 ethnic student teachers from the Faculty of Education, Chiang Rai Rajabhat University, who were first- to fourth-year students in the 2025 academic year. The participants were selected through volunteer sampling and consisted of students who experienced difficulties in Thai listening skills: five Lahu, five Akha, five Karen, and five Hmong students. The research instruments included (a) a Thai listening comprehension pre- and post-test, (b) the CRRU “FANG KRU” Model innovation designed to improve Thai listening skills among ethnic student teachers, and (c) a student satisfaction questionnaire regarding the innovation. The findings revealed that the CRRU “FANG KRU” Model comprised four sets of Thai listening exercises: (1) communication primarily through visual elements, (2) communication through equal use of visual and auditory elements, (3) communication primarily through auditory elements, and (4) communication through auditory elements only. The model demonstrated an efficiency of 82.80/86.00. Furthermore, the students’ Thai listening comprehension abilities improved significantly, and their satisfaction toward the development process and the use of the model was at the highest level.

Keywords: CRRU “FANG KRU” Model, Thai listening skill development, ethnic student teachers

INTRODUCTION

Communication is a vital process in human daily life, serving as a means to convey information, thoughts, and emotions from the sender to the receiver for mutual understanding. Effective communication enables individuals to live harmoniously and achieve shared goals. The key element that makes communication successful is **language**, which serves as the primary tool for expressing meaning between people. According to Sasitorn Thanyalaksanun (1999), language is a human-made tool used to convey ideas, knowledge, emotions, and needs to others. Listening, speaking, reading, and writing all rely on language; without it, human interaction would be impossible. Similarly, Uayporn Panit et al. (2000) emphasized that successful communication requires language as a fundamental component because it acts as a medium through which thoughts are expressed in ways that others can understand.

In the context of Thai education, the Ministry of Education (2018) has emphasized the importance of language proficiency as one of the core competencies of learners. The goal is to enable students to communicate effectively with others, use the Thai language for learning and problem-solving in daily life, and utilize it as a tool for self-development and social participation. However, Thailand’s cultural and linguistic diversity has resulted in communication differences among various ethnic groups. With a population of over 70 million and more than 70 ethnic groups, Thailand is linguistically diverse across five major language families: Sino-Tibetan, Hmong-Mien,

Austronesian, Austroasiatic, and Tai-Kadai (Suwilai Prempreerat, 2002). Although Standard Thai is the official language, communication barriers persist among ethnic groups, particularly in linguistically diverse northern regions such as Chiang Rai Province. Chiang Rai is home to the largest number of ethnic groups in Thailand—17 in total—including the Akha, Lahu, Lisu, Hmong, Karen, Mien, and Khmu, each possessing distinct languages, cultures, and ways of life.

Chiang Rai Rajabhat University, as a local development institution, has seen a growing number of ethnic students each year, particularly in the Faculty of Education, which aims to produce qualified teachers. The researcher observed that many ethnic student teachers tend to be reticent, hesitant to speak or ask questions in class, and lack confidence in communication. The main cause is limited proficiency in the Thai language, especially in listening skills, which are fundamental to effective communication. Many students have difficulty understanding spoken Thai, the speaker's intentions, or the structure and tone of the language, largely because they are unfamiliar with Thai phonology, vocabulary, and sentence structures, which differ significantly from their mother tongues.

Listening problems thus become a major obstacle, affecting communication confidence and overall language performance. Rivers and Temperley (1978) stated that listening is the most frequently used communication skill, accounting for approximately 45% of daily language use, and is directly related to speaking and language learning. Similarly, Sasitorn Thanyalaksanun (1999) and Thanyalak Panakul (2002) affirmed that listening is the foundation of language learning; without strong listening skills, learners cannot comprehend or communicate effectively. Littlewood (1996) further proposed that listening ability requires long-term practice, as it involves complex processes of comprehension, reasoning, and interpretation. Listening is therefore not only essential for language learning but also correlates with overall academic achievement—those with strong listening skills tend to exhibit better understanding and cognitive performance.

Several scholars have highlighted the role of audio-visual media in developing listening skills. Such media can simulate real-life communication contexts, combining sound, visuals, and interaction to create active learning environments. Hatfield and Bitter (1994) noted that these tools foster authentic learning situations, helping learners grasp content more effectively and efficiently.

For these reasons, the researcher developed the CRRU “FANG KRU” Model to enhance the Thai listening skills of ethnic student teachers. The model integrates Littlewood's theoretical framework and consists of three learning stages: preparation, presentation, and summary. Each stage incorporates sub-innovations that comprehensively support listening development. The use of audio-visual media in the CRRU “FANG KRU” Model enables students to listen with better understanding, identify key ideas, and interpret speakers' intentions more accurately. By employing this innovation, ethnic student teachers can improve their comprehension of the Thai language, gain confidence in communication, and further develop other language skills effectively. Moreover, this innovation helps reduce linguistic barriers, promotes social equity, and empowers ethnic student teachers to coexist with pride and readiness to become competent teachers in the future.

Research Objectives

The objectives of this study were as follows:

1. To develop the CRRU “FANG KRU” Model to enhance Thai listening skills among ethnic student teachers.
2. To examine the effectiveness of using the CRRU “FANG KRU” Model in developing Thai listening skills among ethnic student teachers.
3. To evaluate the development process of the CRRU “FANG KRU” Model for improving Thai listening skills among ethnic student teachers.

Conceptual Framework of the Research Project

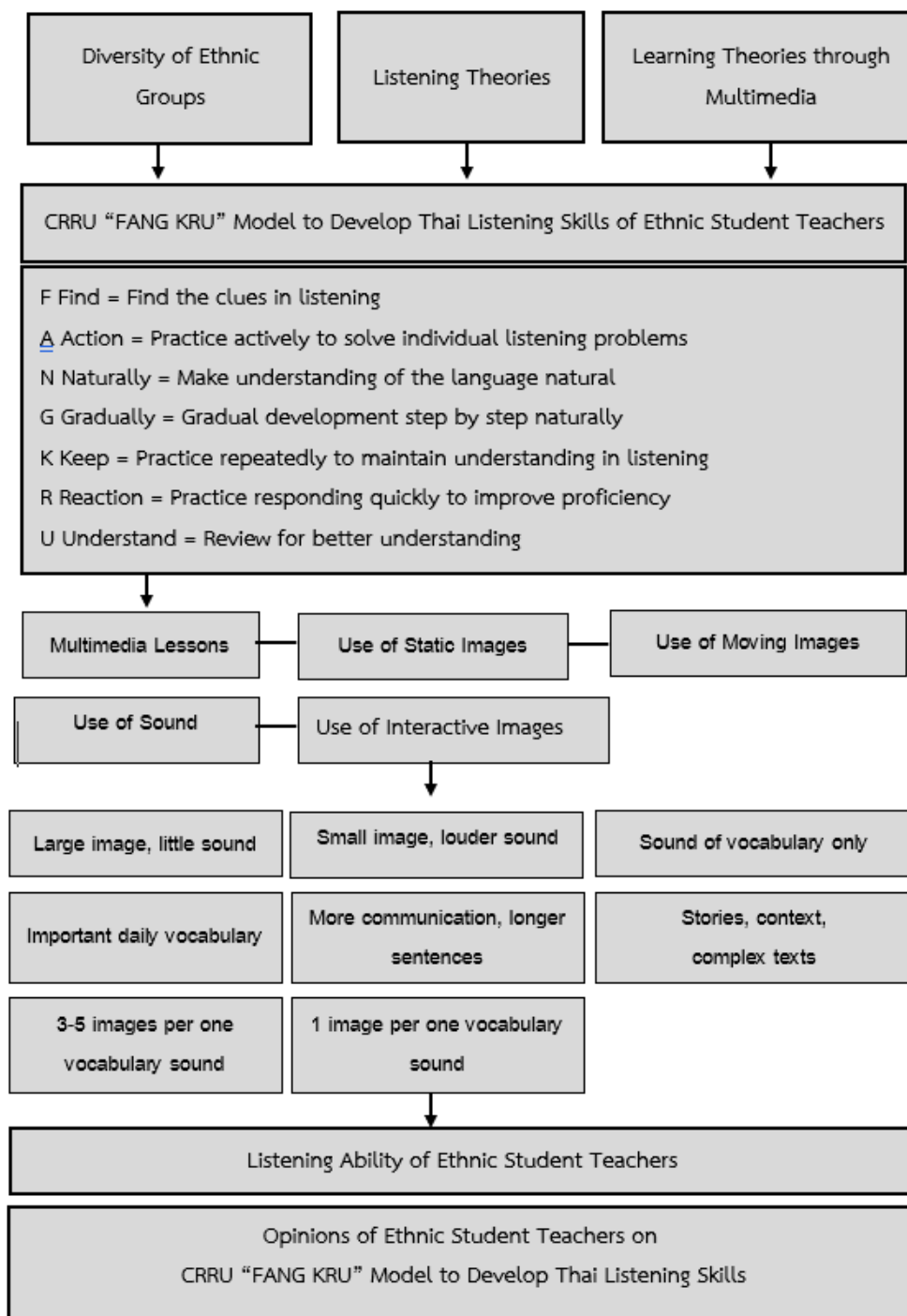


Figure 1 Conceptual Framework for Developing the CRRU “FANG KRU” Model to Enhance Thai Listening Skills of Ethnic Student Teachers

Benefits

1. Ethnic student teachers improve their Thai listening skills after using the CRRU “FANG KRU” Model innovation.
2. The CRRU “FANG KRU” Model to develop Thai listening skills of ethnic student teachers can promote linguistic equality in Thai society between ethnic groups and Thai people, serving as an important tool to address social inequality issues.

3. The CRRU “FANG KRU” Model provides a guideline for developing and solving Thai listening problems among ethnic groups at the primary, secondary, university levels, and for professionals, enhancing the efficiency of Thai listening skills.

Research Procedures

CRRU “FANG KRU” Model to Develop Thai Listening Skills of Ethnic Student Teachers are divided according to the objectives into 3 main steps as follows

1. Development of the CRRU “FANG KRU” Model to Enhance Thai Listening Skills of Ethnic Student Teachers

1.1 Developing the Listening Skill Improvement Process for Ethnic Student Teachers

This step began with analyzing problems related to Thai listening skills, reviewing literature, research, and theories related to ethnic studies, linguistic diversity, listening theories, multimedia learning, standard Thai language, linguistics, second language teaching, listening problem-solving methods, and psychology. Strengths and weaknesses were analyzed, and appropriate approaches were evaluated to formulate a framework for the development process.

The quality of the process was evaluated by five experts who reviewed the accuracy of the teaching tools related to Thai language, ethnic groups, and assessment methods. The difficulty, appropriateness, and content validity index (IOC) with a minimum of 0.60 were also checked. Based on the expert feedback, the researcher made necessary revisions.

A trial run was conducted with 10 Thai language students (not from the sample group). The results were analyzed, and any detected flaws were adjusted to finalize the development process.

1.2 Development of Listening Exercises in the CRRU “FANG KRU” Model

This phase started with analyzing research and theories on listening problems, Thai language teaching as a second language, linguistic-based Thai teaching, and the general context of ethnic students, university environment, local and provincial contexts. From the synthesis of information about listening problems, a framework for Thai listening problems was established to guide the creation of listening exercises, which consist of 4 sets Set 1: Mostly images, little sound Set 2: Less images, more sound Set 3: Vocabulary sound only and Set 4: Sound only communication. The exercises' effectiveness was evaluated by five experts using Rovinelli and Hambleton's method to assess the congruence between exercises and learning objectives, scored as +1 (meets objective), 0 (uncertain), or -1 (does not meet objective). The Content Validity Index (CVI) ranged between 0.67–1.00, which is considered acceptable.

The trial version of the listening exercises was then tested with 10 ethnic students (not part of the sample) in the 2025 academic year, and mean percentages and standard deviations were calculated to correct and finalize the exercises.

1.3 Development of Pre- and Post-Listening Ability Assessment Tools

This step involved analyzing the listening problems of ethnic student teachers and reviewing relevant literature and theories to develop assessment tools for measuring Thai listening ability. The assessment included: Word-level listening test: 50 words selected from problematic sounds for ethnic students, using picture matching. Short sentence-level test: Questions and answers to check understanding of sentences not exceeding 15 syllables. Story-level listening test: Listening to passages of more than 15 syllables, followed by answering and explanation. The assessment tools were validated by five experts with a Content Validity Index (IOC) of 0.81 and then trialed with 10 ethnic student teachers (non-sample) to check reliability, which resulted in a Cronbach's alpha of 0.89. The results were analyzed, and the tools were revised and finalized for use in pre- and post-testing.

2. Study on the Effectiveness of Using the CRRU “FANG KRU” Model to Develop Thai Listening Skills of Ethnic Student Teachers

The study on the effectiveness of the CRRU “FANG KRU” Model involved a sample group consisting of ethnic student teachers who have difficulties in listening skills. The participants included 5 students from the Lahu ethnic group, 5 students from the Akha ethnic group, 5 students from the Pga K'nyau ethnic group, and 5 students from the Hmong ethnic group. Each ethnic group represents different listening problems corresponding to their distinct pronunciation difficulties. The research instruments used were: (1) The Thai Listening Ability Assessment (2) The Thai Listening Skills Development Process This research employed a one-group pretest-posttest design (Luan Saiyot & Angkana Saiyot, 1995), which is a single-case study method involving only one experimental group with data collected before and after the intervention. Data analysis was conducted using mean (M), percentage (%), and standard deviation (SD). The research design is summarized as follows:

Chart 1

Research Design of One-Group Pretest-Posttest Experimental Study Using the Innovation

T1 X T2

Meaning of symbols used in the research:

T1 represents the assessment of Thai listening skills before using the innovation.

X represents the implementation of the process (use of the innovation).

T2 represents the assessment of Thai listening skills after using the innovation.

Research Results

1. Results of the development of the CRRU “FANG KRU” Model to enhance Thai listening skills of ethnic group teacher students are as follows:
 - 1.1 The CRRU “FANG KRU” Model innovation consists of a development process with 4 sets of Thai listening exercises as follows (see Figure 1).

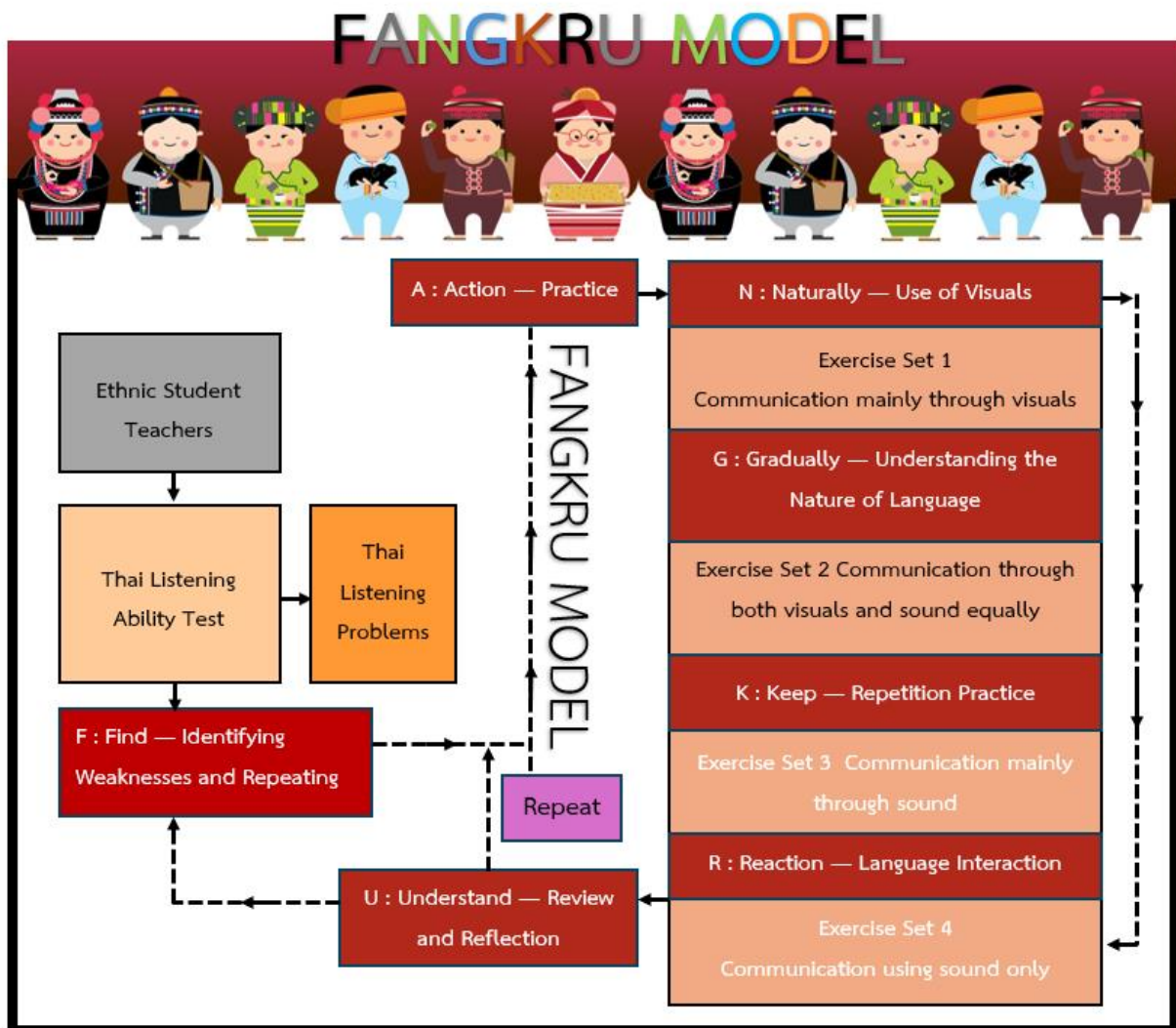


Figure 5 : The CRRU “FANG KRU” Model Innovation for Developing Thai Listening Skills of Ethnic Student Teachers

Four Sets of Thai Listening Practice Exercises The CRRU “FANG KRU” Model consists of four sets of Thai listening practice exercises, described as follows:

Exercise Set 1: *Communication Mainly Through Visuals* (mostly images, minimal sound) This set focuses on vocabulary essential to daily life. It contains six consecutive pictures, each accompanied by one short descriptive sentence (not exceeding 15 syllables). Students view each of the six pictures one at a time while listening to the corresponding audio. The narration aligns with the images to form a coherent story. During this activity, students are encouraged to observe carefully, memorize, and comprehend both the visual and auditory information (note-

taking is allowed). Afterward, students summarize their understanding in written form and retell the story using the same set of pictures. The researcher records individual listening performance data.

Exercise Set 2: *Communication Through Both Visuals and Sound Equally* (fewer images, more sound) This set introduces longer sentences and less visual continuity. It includes three non-sequential images. The missing visual information is replaced by audio narration, encouraging students to rely more on listening comprehension. Students first view and listen to each image with its narration (not exceeding 15 syllables). Between images, additional sentences (audio only) are played to bridge the story. This alternation between image and audio continues throughout the exercise. Students are instructed to memorize, interpret, and take notes on the content. After completing the exercise, they summarize their understanding and retell the story using the same pictures.

Exercise Set 3: *Communication Mainly Through Sound* (mostly sound, minimal visuals) This set focuses on complex narratives. Students view a single image and listen to a detailed story related to it, consisting of 50–100 syllables. While listening, they are encouraged to comprehend the story’s meaning and connection to the image (note-taking allowed). Afterward, students summarize their understanding in written form based on what they have heard and seen.

Exercise Set 4: *Communication Through Sound Only* This set emphasizes real-life listening comprehension without visual aids. Students listen to a continuous story or situational dialogue exceeding 100 syllables. After listening, they summarize their understanding in writing and verbally recount the story to the researcher.

1.2 Results of the Efficiency Evaluation of the CRRU “FANG KRU” Model for Developing Thai Listening Skills among Ethnic Group Student Teachers

The results showed that the process efficiency (E1) of the four sets of practice materials had an average efficiency of 82.80%, which is higher than the standard criterion of 80%. The post-use efficiency (E2) had an average score of 17.20, equivalent to 86.00%, which is also higher than the 80% criterion (Table 1)

Table 1 Results of the Efficiency Evaluation of the CRRU “FANG KRU” Model

Number of Student	Average During Use (E1)	Average After Use (E2)	Efficiency (E1/E2)
10	82.80	86.00	82.80/86.00

2. Results of the Study on the Use of the Innovation

The study found that the pre-test scores had a mean of 11.80 (SD = 2.37), equivalent to 59.00%, while the post-test scores had a mean of 16.95 (SD = 1.66), equivalent to 84.75%. This indicates that the ethnic group student teachers showed a statistically significant improvement in their Thai listening ability at the .01 level of significance (Table 2).

Table 2 Results of the Study on the Use of the Innovation

Evaluation	N	Full Score	Mean (M)	SD	t
Before Use	20	20	11.80	2.37	**7.96
After Use	20	20	16.95	1.66	

** Significant at the .01 level

3. Student Satisfaction toward the Innovation

The students’ satisfaction with the innovation was found to be at the highest level, with an average score of 4.90. When considered in detail, it was found that 7 items were rated at the highest level (mean = 5.00). These included aspects such as the innovation’s ability to enhance listening at the word, sentence, and story levels, its usefulness in solving Thai listening problems, and its role in motivating ethnic group student teachers to further develop their Thai listening skills. (Table 3)

Table 3 Results of Student Satisfaction toward the Use of the CRRU “FANG KRU” Model

No.	Items	Evaluation Results		
		SD	Mean	Level
1	The innovation helps develop word-level listening skills.	0.00	5.00	Highest
2	The innovation helps develop listening skills for longer words.	0.00	5.00	Highest
3	The innovation helps develop sentence-level listening skills.	0.00	5.00	Highest
4	The innovation helps develop listening skills for longer passages.	0.00	5.00	Highest
5	The innovation helps develop story-level listening skills.	0.00	5.00	Highest
6	The innovation helps identify problems in Thai listening.	0.41	4.80	Highest

7	The innovation provides ways to solve Thai listening problems.	0.20	4.96	Highest
8	The innovation has clear and easy-to-use procedures.	0.44	4.76	Highest
9	The innovation is useful for solving Thai listening problems.	0.00	5.00	Highest
10	The instructional set in the innovation is systematically organized from problems to solutions.	0.46	4.72	Highest
11	The innovation encourages ethnic group student teachers to further develop their Thai listening skills.	0.00	5.00	Highest
12	The innovation allows students to practice correcting their Thai listening weaknesses independently.	0.46	4.72	Highest
13	The innovation helps motivate students to solve Thai listening problems.	0.37	4.84	Highest
14	The innovation benefits students in applying Thai listening skills in daily life.	0.37	4.84	Highest
15	The innovation builds confidence in Thai listening.	0.20	4.96	Highest
Average		0.19	4.90	Highest

DISCUSSION AND SUGGESTIONS

Issue 1: Problems in Thai Listening among Ethnic Group Student Teachers

The findings related to the Thai listening problems among ethnic group student teachers can be synthesized into 5 key points as follows:

1. Thai is not their mother tongue, which leads to unfamiliarity with Thai linguistic structures and tonal systems. Due to differences in language and learning experiences, especially the lack of familiarity with complex sentence structures, conjunctions, and word order, students often experience difficulty identifying subjects, verbs, and objects in long sentences. Consequently, they fail to grasp the main ideas completely. In addition, Thai is a tonal language, whereas some ethnic languages lack tonal systems. This results in confusion and misinterpretation. Learners also struggle to understand unfamiliar or academic vocabulary, particularly in long passages containing specialized terms. Such difficulty affects their concentration and listening continuity when encountering unknown words.

These findings are consistent with *Ratchanee Saneesrisan (2011)*, who compared sound systems among ethnic languages and found that differences in phonemes lead to mispronunciations of Thai words. The lack of exposure to borrowed or academic Thai vocabulary further contributes to this problem because certain Thai sounds do not exist in their native languages, making it difficult to connect sounds with meanings accurately.

2. Differences in phonological systems between Thai and ethnic languages were identified as a major factor hindering listening comprehension. Many ethnic languages lack tonal distinctions such as high and low tones, or the “mid–low–falling–rising” tone patterns found in Thai. As a result, learners cannot differentiate meanings between words with similar sounds, for example *maa* (come) vs. *mâa* (horse) or *bpaa* (forest) vs. *bpaa* (fish).

This finding aligns with *Matisoff (1969)*, who studied the Lahu sound system and found that although Lahu has a complex tonal system with 5–7 tones, its tonal categories differ from Thai. This makes it difficult for Lahu learners to distinguish between similar Thai tones, such as mid and low tones. Similarly, *Lewis (1984)* found that the phonological structure of the Karen language differs significantly from Thai, particularly in the final consonant system. Karen has a limited syllable structure and lacks some final consonants, which leads to omissions or substitutions when speaking Thai — for example, omitting the final sound in words like *kin* (“eat”).

Furthermore, *Phongsakorn Sommit (2022)*, who developed the “Thai Accent Audiobook” innovation for Lahu, Akha, Karen, and Hmong students, reported similar challenges caused by differences in phonological systems between ethnic languages and Thai. Additional problems include difficulty pronouncing certain consonants absent from ethnic phonetic inventories, such as distinguishing between “ช” /ch/ and “ส” /s/, or “ด” /d/ and “ต” /t/, as well as “พ” /ph/ and “ฟ” /f/. *Katsura (1982)* also noted that the Akha language differs greatly from Thai in both consonants and tones. Specifically, Akha lacks some consonants found in Thai (e.g., /ch/ and /s/), making it hard for Akha learners to distinguish between these sounds when listening to Thai. *Laksana Daoratanabong (2001)* further confirmed that ethnic learners often face difficulties differentiating Thai tones due to tonal systems that do not match Thai’s tonal patterns, resulting in confusion between high and low tones and, thus, misinterpretation of meaning.

Therefore, the listening difficulties of ethnic group students stem primarily from phonological differences between their native languages and Thai, affecting listening comprehension at the word, sentence, and discourse levels.

Issue 2: Development of the CRRU “FANG KRU” Model to Enhance Thai Listening Skills among Ethnic Group Student Teachers

The efficiency of the CRRU “FANG KRU” Model for developing Thai listening skills among ethnic group student teachers was found to be 82.80/86.00, which is higher than the set criterion of 80/80. This result indicates that the innovation was effective in improving students’ Thai listening abilities. The high level of efficiency can be attributed to the fact that the innovation was systematically developed based on a conceptual framework synthesized from relevant theories and previous research.

The CRRU “FANG KRU” Model demonstrated effectiveness beyond the established criteria and could be implemented successfully in learning settings for several reasons:

2.1 The evaluation process was conducted systematically, beginning with content analysis, followed by the development of the innovation aimed at enhancing Thai listening skills among ethnic group student teachers. The tools were created and reviewed by experts at every stage, with revisions made according to their recommendations. Additionally, the process was carried out step-by-step, including continuous adjustments and corrections of any identified shortcomings.

2.2 The innovation designed to develop Thai listening skills for ethnic group student teachers was created through a systematic process, with instruction structured according to theoretical principles and refined to achieve effectiveness. The innovation includes a series of exercises that gradually shift from primarily visual communication with minimal audio, focusing on key daily vocabulary with consecutive images and short descriptive sentences, to balanced communication using both images and audio with longer sentences and some missing images replaced by narration to train listening comprehension. Further, it progresses to exercises focusing mainly on audio through more complex stories with minimal images, and finally to audio-only communication featuring daily life stories to enhance understanding of sentences and narratives without any visual support.

2.3 The CRRU “FANG KRU” Model innovation to develop Thai listening skills for ethnic group student teachers demonstrated efficiency exceeding the predetermined criteria. This was achieved because the researcher systematically developed the innovation, beginning with data study and analysis, followed by expert review and revisions. The innovation was then created with continuous evaluation by experts in Thai language teaching and assessment. Subsequently, it was trialed with non-sample students to evaluate its effectiveness in enhancing Thai speaking skills among ethnic group students. The results from this trial were used to make further improvements before conducting the final experiment with the sample group.

2.4 The researcher developed the CRRU “FANG KRU” Model to enhance the Thai listening skills of ethnic group student teachers by studying and applying a comprehensive conceptual framework. This process involved reviewing relevant theories, concepts, and previous research on solving Thai listening problems, including Thai pronunciation aspects that affect listening comprehension. The study also examined the general conditions of ethnic group students, as well as the provincial and local contexts. The researcher synthesized information about the listening challenges faced by ethnic students and constructed a framework outlining these listening problems. Subsequently, a prototype of the innovation was created to develop the listening skills of ethnic student teachers, accompanied by a user manual for the CRRU “FANG KRU” Model. The quality of the innovation was then evaluated, and its efficiency was assessed by testing the listening abilities of 10 ethnic students who were not part of the main sample group. Additionally, the reliability of the model was determined through a tryout with another group of 10 non-sample ethnic students. Finally, the results from these trials were used to revise and improve the innovation, resulting in the finalized CRRU “FANG KRU” Model aimed at effectively developing the Thai listening skills of ethnic group student teachers.

Issue 3: Results of Using the CRRU “FANG KRU” Model to Develop Thai Listening Skills of Ethnic Group Student Teachers

3.1 The average pre-test score of Thai listening ability among ethnic group student teachers before using the innovation was 10.50 (SD = 1.95), equivalent to 52.50%. After using the innovation to develop their Thai listening skills, the average post-test score increased to 17.20 (SD = 0.91), equivalent to 86.00%. This clearly indicates that the students’ Thai listening ability improved after using the innovation. This improvement is due to the innovation being developed based on principles of ethnolinguistics, standard Thai language, linguistic theories, concepts and methods related to listening problem-solving, and psychological theories. These foundations provided the ethnic students, who had listening difficulties, with a clear process to enhance their Thai listening skills. The process began with identifying listening problems, which served as a step to confirm the existence of listening issues. This was done through individual reflective data following the reflective learning method—a technique and tool for learning from one experience to another (Wong et al., 1997: 477; Sungruga et al., 2015: 145). Reflection by problem identification is also a technique and tool that helps learners achieve better learning outcomes. This aligns with Yao (2008), who studied Chinese students learning English as a foreign language. Yao

used a process of identifying pronunciation problems affecting listening comprehension, enabling students to address their pronunciation issues. The study showed that recognizing the actual problems led to significant differences in listening ability, which could then be further developed. Similarly, Eckstein (2007) provided problem-identification methods to university students in the United States enrolled in an Intensive English Program to categorize their listening abilities. This identification was done by observing personal errors and seeking help when encountering pronunciation difficulties. Furthermore, Bramlett (2004) applied problem identification to study the learning outcomes of 198 ninth-grade students from 9 classrooms using the CIRC program. The results showed that problem identification provided baseline data to group students according to different abilities before further development. From these methods and research, it is evident that reflective learning through problem identification allows ethnic group students to recognize their weaknesses, which then serves as valuable information for self-improvement. This process results from the students' awareness, expectations, and feelings about their experiences, leading to planning and strategies for solving problems in the future.

After that, the ethnic group students entered the process of developing listening skills, starting with the following four exercise sets: Exercise Set 1: Communication primarily through images (mostly images, little sound) This set focuses on important vocabulary in daily life, featuring 6 consecutive images, each accompanied by one sentence of audio (no more than 15 syllables). Students view the images one by one. Each image has an audio description that matches the image. During viewing and listening, students are encouraged to remember the story and understand each image (note-taking is allowed). Afterward, students summarize their understanding of the images and sounds by recording their own explanations and retelling the story using the same images. Exercise Set 2: Communication through balanced images and sounds (fewer images, more sound) This set features 3 non-consecutive images with longer sentences. Some images are replaced by audio descriptions to train listening comprehension without visual cues. Students view each image accompanied by audio not exceeding 15 syllables, with a story that aligns with the images. Unlike Set 1, after viewing and listening to Image 1 and its sentence, students listen to an additional sentence without an image, then view Image 3 with audio, followed by audio-only segments in alternating sequence. Throughout the exercise, students take notes and comprehend the story and images.

Exercise Set 3: Communication primarily through sound (mostly sound, few images) Students view one image and listen to a more complex story or content in audio form that corresponds to the image, with sentences ranging from 50 to 100 syllables. During the exercise, students are encouraged to remember and understand the story and images, and note-taking is permitted. Exercise Set 4: Communication using sound only

Students listen to continuous daily life stories or scenarios longer than 100 syllables without any image support, to practice understanding sentences and stories without visual aids. The use of images combined with audio in developing Thai listening skills is crucial for learning because it facilitates understanding through multiple channels, as explained by Paivio's Dual Coding Theory (1986), which helps learners encode information through both visual and auditory means. This approach also reduces cognitive load according to Mayer's Cognitive Load Theory (2001), allowing learners to focus more effectively on listening. Additionally, multimedia enhances learner engagement and achievement in listening, as found by Mayer and Moreno (2003). Images serve as contextual support that helps learners quickly grasp unfamiliar vocabulary or content. Sueyoshi and Hardison (2005) also found that receiving visual cues alongside audio leads to better listening comprehension compared to audio alone. Therefore, using combined visual and audio media is an effective approach to solving problems and developing listening skills in learners.

Moreover, in every exercise set, students are required to summarize their understanding by recording their own notes. This process helps them consolidate information gathered through their listening experience. Self-recording fosters long-term comprehension, which aligns with R. Ribeiro et al. (2022), who stated that personal note-taking stimulates memory recall and benefits understanding of the subject matter. Similarly, S. Feng (2021) highlighted that summarizing information in one's own words enhances learning and memory through meaningful rehearsal. This is further supported by G. Storms (2024), who indicated that note-taking acts as a form of repeated review that is crucial for memory retention, enabling individuals to understand the context of the studied material and retrieve it even after a long period without using the information. This means that personal recording plays a significant role in the creation and maintenance of long-term memory because note-taking generates clear retrieval cues, such as dates, times, places, or related people, which effectively trigger autobiographical memory recall (Harvey, 2016). Additionally, recording supports deep encoding because the note-taker must select, reflect on, and sequence events, resulting in information being stored at a stronger semantic level, thereby enhancing long-term recall (Thomsen et al., 2015). Repeated reviewing of notes serves as practice that stabilizes memory traces and reduces forgetting (Feng et al., 2021). Research in autobiographical memory also shows that although minor details fade over time, note-taking and retelling slow memory loss and preserve the accuracy of essential content (Conway et al., 2009). Furthermore, recording emphasizes life-meaningful events or those related to personal goals, which

are remembered as “life story memories” that endure over long periods (Pillemer & Thomsen, 2011). Therefore, note-taking is not merely external evidence collection but also a psychological mechanism that stabilizes long-term memory, making it more detailed and meaningful to an individual’s identity.

3.2 From the satisfaction evaluation results of using the CRRU “FANG KRU” Model innovation to develop Thai listening skills among ethnic student teachers, it was found that overall satisfaction in all aspects was at the highest level, with an average score of 4.90 and a standard deviation of 0.19. Students showed the highest satisfaction (mean = 5.00, standard deviation = 0.00) in seven items: the innovation helped develop listening at the word level, longer word level, sentence level, longer text level, story level; the innovation was useful for solving Thai listening problems; and the innovation motivated ethnic students to improve their Thai listening skills. This is because the CRRU “FANG KRU” Model innovation serves as a starting point for ethnic students to identify their own weaknesses. It supports development that enables listening from the word level, longer words, sentences, texts, to stories, which systematically addresses listening problems. Listening is a complex language skill requiring multiple layers of processing (e.g., sounds, words, sentences, context). Starting listening practice from “short words,” “sentences,” and “stories” (long texts) serves as scaffolding that reduces complexity, allowing learners to gradually adapt and build their understanding structure step by step. Many linguistic and foreign language teaching studies have proposed that this incremental model enhances listening performance in several dimensions: comprehension, memory, gist identification, and listening confidence. This aligns with Ahmadi Safa & Rozati (2015-2016), whose study titled “The impact of scaffolding and nonscaffolding strategies on the EFL learners’ listening comprehension development” found that learners who received scaffolding support improved their listening comprehension more than those who did not. Although this study did not explicitly state starting from words, sentences, to stories, it indicated that “gradually increasing difficulty” with support from teachers and peers helps learners manage complex information better. This is also consistent with Chuang & Wang (2015) in “Listening Enhancement: Converting Input into Intake,” who studied Reading-While-Listening combined with story grammar mapping with Taiwanese elementary students. Their findings showed that this method improves listening comprehension and helps transform listening content into actual “intake” (what learners truly understand) through structured stories guided by grammar mapping. The approach supports the idea that beginning with simpler input (words/short sentences) and gradually moving to longer stories strengthens vocabulary, sentence understanding, and gist comprehension. Furthermore, the research “Finding Structure during Incremental Speech Comprehension” (Lyu et al., 2025) analyzed listeners processing incrementally structured sentences and found that the brain automatically “builds the structure” of sentences word by word, using linguistic and extralinguistic context cues to predict and reinterpret meaning. Receiving gradually more complex input helps improve processing and comprehension of longer sentences. In summary, listening training should start from short words, then sentences, and finally stories to reduce anxiety and increase initial success. Beginning with easy words or sentences makes learners feel capable and successful, boosting self-efficacy before encountering more difficult material. Starting immediately with complex information may overwhelm learners, leading to misunderstanding and confusion. Scaffolding with incrementally increasing difficulty helps the brain process, integrate, and link new information to prior knowledge more effectively. Moreover, this listening practice creates connections between vocabulary, sentences, and contextual stories. Training starting from words, then sentences, then stories enables learners not only to memorize vocabulary or sentence structures but also to integrate components to understand more complex narratives, which is a crucial goal for real-world listening skills.

Next, the innovation helped students understand methods to solve Thai listening problems and boosted their confidence in listening to Thai, with an average score of 4.96 and a standard deviation of 0.20. This is because awareness of their listening problems guides students on how to improve. It also helps them understand and recognize their actual listening weaknesses. Awareness of one’s own listening deficiencies is a key factor that increases the success of solving listening problems since learners can reflect and choose appropriate listening strategies, such as note-taking, guessing words from context, or repeated listening, which enhances comprehension and retention of content. Research by Vandergrift (2003) found that learners who are aware of their weaknesses can select strategies more effectively than those unaware of their problems. Graham (2006) emphasized that reflecting on listening difficulties helps learners set goals and adjust their practice methods better. Goh (2008) and Cross (2010) indicated that recording errors and comprehension helps learners identify recurring error patterns and improve listening skills faster. Thus, awareness of deficiencies acts as a crucial mediator that stimulates strategy adjustment and self-regulation, resulting in more effective and successful resolution of listening problems.

In addition, the innovation helped motivate students to solve their Thai listening problems and enabled ethnic group students to apply what they learned in real-life situations, with an average score of 4.84 and a standard deviation of 0.37. This is because developing listening skills among ethnic group students often faces obstacles arising from linguistic and cultural differences, which frequently lead to difficulties in understanding Thai content. Having motivation to overcome these difficulties is a crucial factor influencing learning success, as motivation drives effort, persistence, and continuous practice in developing listening skills (Dörnyei, 2001).

Several studies have found that learners with higher motivation to improve their listening skills tend to identify their weaknesses more accurately and choose appropriate problem-solving strategies—such as repeated listening, note-taking, or using visual aids—which enable them to address their problems effectively and achieve better outcomes (Vandergrift, 2003; Graham, 2006). Furthermore, the transfer of learning, or the ability to apply what has been learned to real-life situations, is a key variable enhancing listening skill development. Zimmerman (2002) noted that when learners reflect on and apply learned strategies in authentic contexts, it strengthens the retention and sustainability of knowledge and skills.

In the context of ethnic group students, applying problem-solving strategies to real situations—such as listening to lectures, conversing with classmates, or understanding learning materials—enhances listening accuracy and effectiveness (Goh, 2008; Cross, 2010). Therefore, the success of addressing listening deficiencies among ethnic group students increases when learners are highly motivated to improve their skills and can apply learned strategies and results in practical contexts. This contributes to a more effective and sustainable listening skill development process. In addition, the innovation helped students identify their Thai listening problems, with an average score of 4.80 and a standard deviation of 0.41, and was perceived as having a clear and easy-to-use process, with an average score of 4.76 and a standard deviation of 0.44. This resulted from designing the innovation to be user-friendly and to reduce information complexity, allowing students to grasp key ideas more quickly and pinpoint areas of misunderstanding or weaknesses in listening (Buzan, 2010; Nesbit & Adesope, 2006). Moreover, the visual and multimedia elements in each stage helped learners connect vocabulary, sentences, and story contexts, promoting deeper cognitive processing and better content retention compared to listening without supportive tools.

Lastly, the instructional design of the innovation was structured systematically from problem identification to problem-solving and provided opportunities for students to practice self-correcting their Thai listening deficiencies, with an average score of 4.72 and a standard deviation of 0.46. Self-regulated learning enables learners to plan, set goals, monitor progress, and adjust their learning strategies effectively. This aligns with Zeng's (2018) findings that self-regulated practice improves learners' listening ability and self-awareness, particularly in listening tasks that require sustained effort and structured planning. Moreover, self-directed practice enhances comprehension and memory retention.

However, from the research findings, the researcher observed that the CRRU "FANG KRU" Model for developing Thai listening skills among ethnic group student teachers would be most beneficial when applied to learners who have existing listening difficulties and clear learning goals. Therefore, before implementing the innovation, it is recommended to clearly communicate its objectives, benefits, and intended outcomes to the target group to foster shared motivation and a sense of purpose in improving their Thai listening skills.

Suggestions

The research titled "*Development of the CRRU 'FANG KRU' Model to Enhance Thai Listening Skills of Ethnic Group Student Teachers*" offers the following recommendations:

Recommendations for Applying the Research Findings

1. When implementing the CRRU "FANG KRU" Model innovation to develop Thai listening skills among ethnic student teachers, users should thoroughly study the details and procedural steps of the innovation to ensure correct application and achieve effective results.
2. In applying the CRRU "FANG KRU" Model, it is essential that instructors or facilitators possess sufficient knowledge and understanding of the tests and practice sets included in the innovation so that they can accurately respond to learners' questions and provide appropriate guidance.
3. When using the CRRU "FANG KRU" Model to develop Thai listening skills, data collection should be conducted in settings, times, and situations that are free from pressure, in order to obtain authentic and reliable information on students' Thai listening abilities.
4. Before implementing the CRRU "FANG KRU" Model, the objectives and goals of using the innovation should be clearly communicated to the target group so that they understand the expected outcomes and are motivated to improve their Thai listening skills through participation in the innovation process.

Recommendations for Future Research

1. Future studies should explore approaches for developing Thai listening skills among native Thai speakers to ensure accurate comprehension and listening proficiency in accordance with standard Thai language conventions.

2. It is recommended to develop innovations that enhance Thai listening skills for ethnic minority students at the early primary education level, in order to establish a strong foundation for accurate Thai listening from a young age.

3. Future research should compare the characteristics of Thai listening skills between foreign learners and ethnic minority learners to identify similarities and differences. The findings could contribute to the development of more effective innovations for promoting Thai listening skills among foreign learners.

CONCLUSION

In conclusion, this study discusses the creation of the CRRU “FANG KRU” Model, an innovation developed to enhance Thai listening skills among ethnic student teachers. The development process began with identifying existing problems and continued through to evaluating the outcomes of listening skill improvement. The innovation integrates four stages of listening practice that progress from image-based communication to purely auditory comprehension. Learners begin with visual aids accompanied by short audio sentences, gradually moving toward more complex auditory input and finally listening to full stories without any visual support.

Findings indicate that the innovation effectively enhances Thai listening comprehension, enabling ethnic student teachers to better understand spoken Thai in both academic and everyday contexts. As a result, it contributes to improved communication, confidence, and overall language proficiency.

Given the demonstrated success of the CRRU “FANG KRU” Model, it is recommended that careful attention be paid to its implementation process. The innovation should be thoughtfully adapted and applied according to the learners’ background, existing challenges, and proficiency levels to maximize its benefits and ensure long-term development of Thai listening skills.

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