

# Exploring Research Trends in Thai Learners Studying Korean via Topic Modeling and Keyword Network Analysis

## การวิเคราะห์แนวโน้มการวิจัยเกี่ยวกับผู้เรียนภาษาเกาหลีชาวไทย ผ่านการวิเคราะห์แบบจำลองหัวข้อและเครือข่ายคำสำคัญ

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**Keywords:** Korean language education, Thai learners studying Korean, research trend, Topic Modeling, Keyword Network Analysis

**คำสำคัญ:** การเรียนการสอนภาษาเกาหลี, ผู้เรียนภาษาเกาหลีชาวไทย, แนวโน้มการวิจัย, การสร้างแบบจำลองหัวข้อ, การวิเคราะห์เครือข่ายคำสำคัญ

### Abstract

**Background and Objectives:** The Korean language education in Thailand has increasingly spread. Research on Thai learners studying Korean has also been continually conducted. The number of students majoring in Korean at the undergraduate level and subsequently pursuing graduate studies in Korean, Korean literature, and Korean culture has also increased, leading to the dissemination of master's and doctoral theses. This study aims to study the trends and current situation of research on Korean language teaching and learning for Thai learners using Topic Modeling and Keyword Network Analysis. By doing so, the study aims to present important information and suggest guidelines in developing Korean language teaching and learning in Thailand.

**Methods:** This study examined 283 research papers and theses on Korean language education for Thai learners published between 1998 and September 2024. The dataset includes 149 theses, 93 KCI-indexed articles, and 41 TCI-indexed articles. The data were collected using the keywords relating to Korean language education for Thai learners from RISS (Research Information Sharing Service) and Thai Journals Online. Then Topic Modeling and Keyword Network Analysis was used to analyze topics and research patterns.

**Results:** The Topic Modeling Analysis revealed that the research topics about curriculum and textbook development have consistently been of interest until now. In addition, the topics about language skills, including pronunciation, grammar, and pragmatics have been raised as research issues in various aspects. Especially, after 2020, there has been an increase in publishing the research papers on teacher training and learner-related factors such as anxiety and learning strategies. The Keyword Network Analysis showed the words "comparison," "use," "pattern," and "process" were used in many research topics.

**Application of this study:** The continuing interest in curriculum and textbook development from the above study results highlights the need for diverse educational information tailored to the characteristics of Thai learners. Additionally, the growing focus on individual learner factors reflects the necessity of addressing learners' challenges and creating learning environments and effective teaching methods. In addition, the results of the Keyword Network Analysis suggest the necessity of conducting more cross-cultural studies that align with the special characteristics of Thai learners and applying these findings in educational settings.

**Conclusions:** This study examined trends in Korean language education research for Thai learners, highlighting the importance of adapting to Thailand's changing educational landscape. As Korean language education progresses in secondary and higher education, continued research and practical applications are essential. The rising interest among Thai students emphasizes the need for tailored instructional materials, innovative strategies, and learner-centered approaches. Integrating digital learning and addressing specific linguistic challenges will enhance the learning experience. Bridging theoretical research with classroom practice can ensure that Korean language education remains effective and responsive to the diverse needs of Thai learners better.

### บทคัดย่อ

**ที่มาและวัตถุประสงค์:** การศึกษาภาษาเกาหลีในประเทศไทยได้แพร่หลายมากยิ่งขึ้น มีการศึกษาวิจัยเกี่ยวกับผู้เรียนภาษาเกาหลีที่เป็นชาวไทยอย่างต่อเนื่อง จำนวนนักศึกษาที่เลือกเรียนวิชาเอกภาษาเกาหลีในระดับปริญญาตรีและศึกษาต่อในระดับบัณฑิตศึกษาในสาขาภาษาเกาหลี วรรณคดีเกาหลี และวัฒนธรรมเกาหลีได้เพิ่มขึ้นจำนวนอย่างต่อเนื่องเช่นกัน ส่งผลให้มีการเผยแพร่วิทยานิพนธ์ในระดับปริญญาโทและปริญญาเอกตามมา งานวิจัยนี้มีวัตถุประสงค์เพื่อศึกษาแนวโน้มและสถานการณ์ปัจจุบันของงานวิจัยเกี่ยวกับการเรียนการสอนภาษาเกาหลีสำหรับผู้เรียนชาวไทย โดยใช้การวิเคราะห์แบบจำลองหัวข้อ (Topic Modeling) และการวิเคราะห์เครือข่ายคำสำคัญ (Keyword Network Analysis) พร้อมทั้งนำเสนอข้อมูลสำคัญและเสนอแนะแนวทางในการพัฒนาการเรียนการสอนภาษาเกาหลีในประเทศไทย

**วิธีการศึกษา:** งานวิจัยนี้ใช้วิธีการศึกษาโดยการวิเคราะห์งานวิจัยและวิทยานิพนธ์ที่เกี่ยวกับการเรียนการสอนภาษาเกาหลีสำหรับชาวไทยจำนวน 283 รายการที่นำเสนอตั้งแต่ปี ค.ศ. 1998 ถึงเดือนกันยายน ปี ค.ศ. 2024 ได้แก่ปริญญา นิพนธ์จำนวน 149 เรื่อง, ศูนย์ดัชนีการอ้างอิงวารสารเกาหลี (KCI) จำนวน 93 เรื่อง และ ศูนย์ดัชนีการอ้างอิงวารสารไทย (TCI) จำนวน 41 เรื่อง โดยรวบรวมจากการค้นหาคำสำคัญที่เกี่ยวข้องกับการเรียนการสอนภาษาเกาหลีเพื่อชาวไทยจากฐานข้อมูล RISS (Research Information Sharing Service) และฐานข้อมูล ThaiJO (Thai Journals Online) จากนั้นนำแบบจำลองหัวข้อ (Topic Modeling) และเครือข่ายคำสำคัญ (Keyword Network Analysis) มาวิเคราะห์หัวข้อและแบบแผนการวิจัย

**ผลการศึกษา:** ผลจากการวิเคราะห์แบบจำลองหัวข้อ (Topic Modeling) พบว่าหัวข้องานวิจัยเกี่ยวกับหลักสูตรและการพัฒนาการเรียนได้รับความสนใจอย่างต่อเนื่องจนถึงปัจจุบัน นอกจากนี้หัวข้อที่เกี่ยวข้องกับทักษะทางภาษา ได้แก่ การออกเสียง ไวยากรณ์ วัฒนธรรม ก็ถูกหยิบยกขึ้นมาเป็นประเด็นการวิจัยในหลากหลายแง่มุม โดยเฉพาะอย่างยิ่ง หลังจากปี ค.ศ. 2020 มีการตีพิมพ์งานวิจัยที่เกี่ยวข้องกับการอบรมพัฒนาผู้สอนและปัจจัยสำคัญของผู้เรียน (ความกังวล, กลยุทธ์) อย่างแพร่หลายมากขึ้น และผลจากการวิเคราะห์เครือข่ายคำสำคัญพบว่ามีคำนำคำว่า “comparison”, “use” “pattern” “process” มาใช้ในหัวข้องานวิจัยเป็นจำนวนมาก

**การประยุกต์ใช้:** ความสนใจอย่างต่อเนื่องในด้านการพัฒนาการเรียนและหลักสูตรจากผลการศึกษาข้างต้นแสดงให้เห็นว่ามีความจำเป็นที่จะต้องมียุทธศาสตร์เกี่ยวกับการเรียนการสอนที่หลากหลายและสอดคล้องกับลักษณะพิเศษของผู้เรียนชาวไทย นอกจากนี้ ความสนใจด้านปัจจัยสำคัญของผู้เรียนที่เพิ่มขึ้นนั้นได้สะท้อนให้เห็นถึงความจำเป็นในการตระหนักถึงอุปสรรคของผู้เรียนและการสร้างสภาพแวดล้อมทางการศึกษาตลอดจนวิธีการเรียนการสอนที่มีประสิทธิภาพ นอกจากนี้ ผลจากการวิเคราะห์เครือข่ายคำสำคัญแสดงให้เห็นว่า ความสนใจในแง่มุมเชิงเปรียบเทียบระหว่างวัฒนธรรมที่เหมาะสมกับลักษณะพิเศษของผู้เรียนชาวไทยมากขึ้นเพื่อนำไปใช้ในการเรียนการสอนต่อไป

**บทสรุป:** การศึกษานี้ได้วิเคราะห์แนวโน้มของงานวิจัยด้านการศึกษาภาษาเกาหลีสำหรับผู้เรียนชาวไทย โดยเน้นความสำคัญของการปรับตัวให้เข้ากับสภาพแวดล้อมทางการศึกษาที่เปลี่ยนแปลงในประเทศไทย เมื่อการศึกษาภาษาเกาหลีมีความก้าวหน้าในระดับมัธยมศึกษาและอุดมศึกษา การวิจัยอย่างต่อเนื่องและการประยุกต์ใช้ในทางปฏิบัติเป็นสิ่งสำคัญ ความสนใจภาษาเกาหลีที่เพิ่มขึ้นของนักเรียนไทยเน้นให้เห็นถึงความจำเป็นในการจัดทำสื่อการเรียนรู้ที่เหมาะสม กลยุทธ์ที่สร้างสรรค์ และแนวทางการเรียนรู้ที่เน้นผู้เรียนเป็นศูนย์กลาง การผสมผสานการเรียนรู้แบบดิจิทัลและการจัดการกับความท้าทายทางภาษาจะช่วยเสริมสร้างประสบการณ์การเรียนรู้ให้ดียิ่งขึ้น การเชื่อมโยงระหว่างงานวิจัยทางทฤษฎีกับการปฏิบัติในห้องเรียนจะช่วยให้การศึกษาภาษาเกาหลีมีประสิทธิภาพและตอบสนองต่อความต้องการที่หลากหลายของผู้เรียนชาวไทยได้ดียิ่งขึ้น

## Introduction

This study aimed to explore the trends and current state of Korean language education research focusing on Thai Korean learners by utilizing topic modeling and keyword network analysis. Investigating research trends targeting learners from a single cultural background provides a clear overview of the context of local Korean language education and its characteristics, enabling researchers to identify research tendencies and predict future research directions. By exploring the research trends in Korean language education related to Thai learners and focusing on Thailand, where enthusiasm for learning Korean is currently among the highest in the world, this study aims to identify the key development areas of Korean education for Thai learners.

Korean language education in Thailand began in the 1990s, primarily at universities, and was influenced by the rise of the Korean Wave (Hallyu). After steady growth, it entered a new phase in the 2010s. The introduction of Korean language courses in secondary schools by the Office of the Basic Education Commission in 2008 was a crucial factor in this development (Areeyathanawa, 2013). After Korean was designated as the seventh language in Thailand's university entrance exams in 2016 and the actual implementation of the Korean language exam in 2018, Korean language education, which had been primarily concentrated at the university level, became firmly established in secondary education as well (Larprungrueng & Lee, 2020).

According to information on the website of the Korean Education Center in Thailand, as of 2024, a total of 47,844 students are learning Korean in 210 secondary schools. In the 2024 university entrance examination for second foreign languages, 3,281 students took the Korean language exam, making Korean the second most popular language after

Chinese and Japanese. Regarding higher education, 18 (58%) out of 31 universities offering Korean language courses have established major programs. Moreover, nine universities offer comprehensive programs that include major, minor, and general education courses. The number of Korean language programs in universities significantly increased between 2010 and 2014, and the establishment of major programs has grown in the past three to four years.

With the increasing spread of Korean language education in Thailand, research on Thai Korean learners has also been actively conducted. The number of students majoring in Korean in Thailand and subsequently pursuing graduate studies in Korean language education, Korean literature, and Korean culture has increased, leading to the proliferation of master's and doctoral theses. Moreover, the growing number of Thai Korean learners in Thailand and Korea have drawn the attention of many Korean language education experts in Thailand.

However, limited studies examine research specifically on Thai Korean learners. This study reviews academic papers and theses related to Thai Korean learners using topic modeling and keyword network analysis. Topic modeling is a text-mining technique based on statistical models used to discover a text's underlying semantic structures. Furthermore, keyword network analysis is used to extract key information centered around keywords and analyze the relationships between these pieces of information.

Examining research conducted on Korean learners, particularly in Thailand, which has the largest number of Korean language learners worldwide, is highly meaningful as it will enable in-depth discussions on why researchers are interested in specific topics related to Thai learners and how these findings can be applied to the field of Korean language education.

## **Literature Review**

### **1. Topic Modeling and Keyword Network Analysis**

Topic modeling is a technique that is used to infer latent topics within large volumes of text-based data. According to Blei (2012), the advancement of technology in modern society has led to an overwhelming amount of data, which makes it increasingly difficult to locate the necessary information. Consequently, topic modeling has emerged as an efficient means of searching for, managing, and understanding information. As a statistical processing method, topic modeling estimates the probability of topics appearing within extensive collections of texts. It is used to discover latent words within text documents and clustering words with similar meanings based on their context of use (Blei, 2012; Kherwa & Bansal, 2020; Schmiedel, Müller, & Vom Brocke, 2019).

Topic modeling is based on the core concept that a document (a collection of various words) can be clustered and categorized into several topics based on the relationships among words. Furthermore, a hierarchical structure exists where topics (formed by word groups) can be recombined to construct a complete document. This method allows for the rapid extraction and categorization of hidden subjects within the text and often utilizes the latent Dirichlet allocation (LDA) algorithm for topic extraction. LDA calculates the probabilities of hidden topic variables within a document and iteratively applies machine learning until satisfactory results are obtained (Blei, Ng & Jordan 2003).

LDA can effectively separate or integrate the same word, which has different meanings depending on the context, thereby producing semantically valid results when classifying document topics. The strength of this method is that it alleviates the difficulty of reading every individual paper to grasp its keywords or to qualitatively consider and review the keywords advocated by each researcher. Moreover, it enables topic analysis and quantitative research through the

statistical analysis of objective bibliographic information, including titles, keywords, and abstracts, down to the morpheme level, thereby extracting keywords to analyze research trends. Recently, topic modeling using LDA has been extensively utilized in research exploring topics in academic journals and papers, as well as in studies that simultaneously address text topics and sentiments by combining topic modeling with sentiment analysis. This method has also been frequently used for phenomenon analysis in news articles and social media. The present study utilized topic modeling using an LDA-based algorithm.

A language network analysis begins by extracting meaningful words from text messages and selecting keywords that best represent the meaning of the given text. This process involves analyzing the connection relationships between keywords within the text to generate a network, thereby examining various text characteristics.

In language network analysis, keyword patterns are analyzed using the concept of centrality. Centrality indicates the extent to which an actor is positioned at the center of the network. There are three types of centralities: degree, closeness, and betweenness. The degree centrality measures the number of nodes that are connected directly to a given node. A node with a high degree of centrality plays an important role in disseminating information and interactions. The closeness centrality measures centrality based on the average distance between nodes. The shorter the distance, the more crucial the node in terms of information dissemination and interaction. The betweenness centrality measures the degree to which a node acts as a mediator between other nodes in the network and helps identify nodes that are important for information dissemination.

Research trend analysis using language network analysis typically involves extracting keywords, calculating their frequency of occurrence, analyzing cooccurrence relationships and centrality, and presenting results through visualization. In the present study, we derived various centrality metrics and focused our analysis on the degree centrality to examine the extent of a keyword's connections and its influence within the network.

## **2. Research Trends for Thai Korean Learners**

Currently, the research trends in Korean language education have primarily focused on Chinese learners, who constitute a significant number of learners. However, since the late 2010s, the number of Korean language learners from various countries has increased, leading to an increase in studies examining research trends that focus on the characteristics of learners from individual countries. Research on Korean language education for Thai learners is quite recent, with notable studies by Han (2023) and Chen & Kim (2023).

Han (2023) examined the characteristics and main content of research focusing on Thai Korean learners, specifically through dissertations from 2001 to 2019. The researcher found that the highest number of studies were conducted between 2013 and 2016, with contrastive and error analyses comprising more than half of the methodologies used. Text-mining analysis revealed that the terms "analysis," "use," "expression," "result," and "Thai language" appeared with high frequency. Furthermore, "pronunciation" had the highest term frequency and inverse document frequency values, followed by "expression," "speech act," "past," "strategy," and "compliment." The researcher noted that although research was conducted across various fields, no distinct trend in research flow was observed over different periods.

Chen & Kim (2023) reviewed 134 journal research articles to analyze research trends by year, researcher, method, and topic. Their analysis showed that the peak year for research publications was 2018, with 16 articles. Although this number dropped to five articles in 2020, it has since fluctuated. During the 2000s, studies focused primarily on culture and grammar, whereas research on pragmatics, vocabulary, and pronunciation began to increase in the 2010s. However, they found a lack of research in specific areas such as "translation," indicating a need for further studies in these domains.

These studies provide insights into the current state of Korean language education for Thai learners. However, these studies only analyzed theses or journal articles, which is a limitation. To comprehensively examine the overall research trends, both theses and journal articles should be considered. Moreover, these studies did not include papers available in the Thai Journal Citation Index (TCI) Centre database, which presents another limitation. Therefore, the present study examined the overall trends and status of Korean language education research for Thai learners by conducting a text-mining-based study rather than relying on subjective analysis by individual researchers.

## **Research Methods**

This study aimed to analyze the keywords and knowledge structures of research topics in order to suggest directions for the development of Korean language education targeted at Thai learners. To date, analyses of research trends in language education have generally used frequency statistical analysis techniques to reinforce the consistent flow and direction of research. However, these analytical methods may involve subjective interpretations by researchers, making it challenging to objectively and comprehensively grasp the overall trends. In other words, the same study may be classified into different topics depending on the researcher's interests, which may complicate the understanding of the interrelationships or associations between thematic words in the research.

The present study examined research trends in Korean language education for Thai learners by using topic modeling and keyword network analysis, both of which are text-mining methods. For this purpose, we collected 283 research papers that were published between 1998 and September 2024. The selection of research papers involved using the Research Information Sharing Service ([www.riss.kr](http://www.riss.kr)), a Korean academic research information search engine, to simultaneously search the keywords "Thai," "Korean language," or "Thai Korean language learners," thereby extracting Korean Citation Index (KCI)-indexed papers and dissertations related to Korean language education for Thai people. Moreover, searches for "Korean" and "Korean languages" were conducted through the TCI database (<https://www.tci-thaijo.org>) to extract Korean-language-education-related papers published in Thailand, and relevant research in Korean language education was identified and extracted through index and content analysis.

Using the compiled list of studies, NetMiner 4.4 was used for topic modeling and keyword network analysis. NetMiner is a software tool that can perform text network analysis, and it is frequently utilized in research trend analysis of unstructured texts and social network analysis. This software has an internal extension program called Biblio Data Collector, which facilitates the preprocessing of Korean keywords. Moreover, it can integrate with RISS and KCI, both of which provide domestic academic journal information within the program, making it particularly suitable for analyzing keywords in academic papers written in Korean.

First, a preprocessing step was performed to extract thematic words from the collected data. A Korean morphological analyzer was used to extract nouns from this large-scale unstructured text dataset. Words that appeared only once were excluded from the thematic category. Cooccurring words adjacent to the keywords were limited to nouns to extract keywords and analyze their relevance to significant topics. Moreover, words such as "Korean language," "education," "research," "paper," "review," "plan," "academic," "subject," and "focus" were registered as exclusion words. These words were considered to have general meanings. Thus, excluding them helped improve the accuracy results of the extracted keywords.

Subsequently, the preprocessed data were analyzed to identify high-frequency vocabulary, and topic modeling techniques were used to extract topic groups. The LDA method, which is a representative topic modeling algorithm, was used in this study. Finally, language network analysis was conducted by performing a frequency analysis of cooccurring keywords and degree centrality analysis. As shown in the Figure 1.

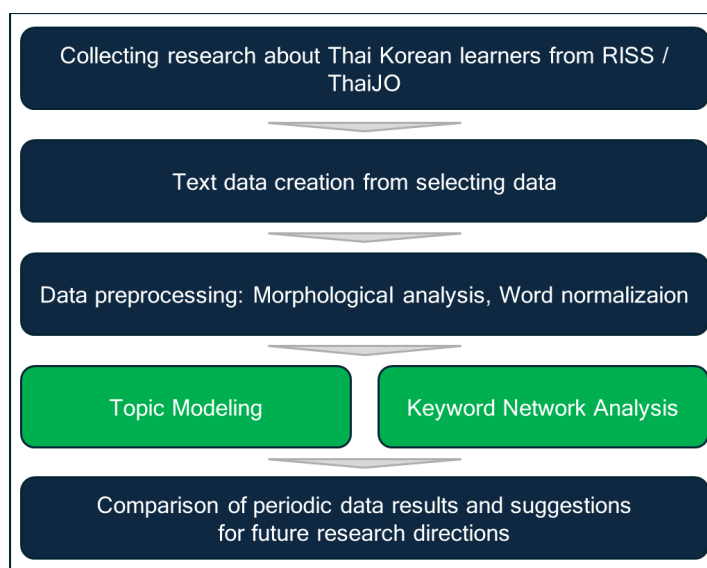


Figure 1 Research Process of Text-Mining

(Source: Jeong, 2024)

## Research Results

### 1. Quantitative Research Trends

A total of 283 research papers were analyzed in this study. Among them, studies published in Korea included 128 master's theses, 21 doctoral dissertations, and 93 KCI-indexed journal articles. Moreover, 41 journal articles were TCI-indexed. In examining the number of research published over time, one master's thesis was published in 1998 and 2001, followed by a three-year period wherein no theses were published until 2004.

Interestingly, the number of master's theses showed a sharp increase in the early 2010s. This can be attributed to the growing number of international students studying in Korea, which resulted in an increase in the number of papers by Thai authors and increasing interest from domestic authors driven by the enthusiasm for Korean language education in Thailand.

KCI journal articles have been consistently published at a rate of at least three articles per year since 2009 and nine articles each in 2021 and 2023. Since 2016, the number of TCI journal articles has steadily increased, significantly increasing to 10 articles in 2022 and 9 articles in 2023, indicating a notable interest in Korean language education.

Table 1 Number of Studies by Study Type and Year

	Doctor's Dissertation	Master's Thesis	KCI-Indexed Research Paper	TCI-Indexed Research Paper	Total
1998	-	1	-	-	1
2001	-	1	-	-	1
2004	-	-	1	-	1
2005	-	2	1	-	3

Table 1 Number of Studies by Study Type and Year (cont.)

	Doctor's Dissertation	Master's Thesis	KCI-Indexed Research Paper	TCI-Indexed Research Paper	Total
2006	-	-	1	-	1
2007	-	3	1	-	4
2008	-	3	3	-	6
2009	-	2	6	-	8
2010	-	1	2	1	4
2011	-	7	3	-	10
2012	-	10	7	-	17
2013	-	13	5	-	18
2014	-	14	3	1	18
2015	3	5	6	-	14
2016	3	9	7	3	22
2017	2	10	5	5	22
2018	4	8	8	3	23
2019	1	13	5	3	22
2020	1	4	2	4	11
2021	3	6	9	2	20
2022	1	9	7	10	27
2023	2	3	9	9	23
2024	1	4	2	-	7
Total	21	128	93	41	283

## 2. Keyword Frequency Analysis

As a result of conducting a frequency analysis of keywords extracted from studies related to Korean language education for Thai learners, the top 30 words by frequency are shown in table 2. Overall, words such as “use (사용),” “culture (문화),” “error (오류),” “expression (표현),” “pronunciation (발음),” “purpose (목적),” and “meaning (의미)” frequently appeared in research on Korean language education for Thai learners. This finding suggests that although the field of Korean language education is vast, there is a particular focus on the cultural background and on researching the Korean language usage and expression errors of Thai learners.

Table 2 Top 30 Keyword Frequency Rankings

Ranking	Keyword	Frequency	Ranking	Keyword	Frequency
1	use	183	16	perception	87
2	culture	167	17	grammar	82
3	error	166	18	secondary school	82
4	expression	154	19	contrastive	81
5	pronunciation	142	20	process	79
6	purpose	125	21	pragmatics	79
7	meaning	124	22	tense	78
8	strategy	124	23	types	78
9	particle	119	24	comparison	74

**Table 2** Top 30 Keyword Frequency Rankings (cont.)

Ranking	Keyword	Frequency	Ranking	Keyword	Frequency
10	textbook	118	25	communication	71
11	speech act	110	26	acquisition	70
12	difference	108	27	teaching	66
13	teacher	106	28	native	65
14	comprehension	93	29	request	65
15	vocabulary	88	30	environment	64

Notably, in relation to linguistic knowledge, keywords such as “pronunciation” (rank 5), “speech act” (rank 11), “vocabulary” (rank 15), “grammar” (rank 17), “pragmatics” (rank 21), and “tense” (rank 22) stand out. We examined how research related to these aspects of linguistic knowledge has specifically trended and been conducted through topic modeling analysis.

### 3. Topic Modeling Analysis

Topic modeling analysis was conducted to identify the topics addressed in research on Korean language education for Thai learners, which resulted in the extraction of five topics. Topic modeling resulted in five topics by using key terms extracted from previous studies, setting  $\alpha = 0.1$  and  $\beta = 0.01$ , and conducting 1000 iterations. The findings are shown in table 1, which lists the top five keywords assigned to each topic in order of probability distribution along with the number of documents related to each topic.

**Table 3** Results of Topic Modeling Analysis

	Keyword 1 (probability)	Keyword 2 (probability)	Keyword 3 (probability)	Keyword 4 (probability)	Keyword 5 (probability)	Doc
<b>Topic 1</b>	textbook	major	curriculum	university	demand	53
	0.060	0.028	0.021	0.021	0.018	
<b>Topic 2</b>	pronunciation	error	native	phoneme	consonant	65
	0.072	0.046	0.024	0.022	0.021	
<b>Topic 3</b>	expression	speech act	perception	pragmatics	use	48
	0.062	0.051	0.037	0.036	0.029	
<b>Topic 4</b>	use	particle	strategy	error	grammar	50
	0.043	0.022	0.022	0.018	0.018	
<b>Topic 5</b>	culture	teacher	process	secondary	class	67
	0.055	0.038	0.030	0.030	0.028	

Among these topics in table 3, Topic 5 accounted for the largest proportion. With regard to the number of studies, the order of prominence was as follows: Topic 5 > Topic 2 > Topic 1 > Topic 4 > Topic 3. However, it is evident that research has been conducted evenly across different topics rather than concentrating on a single topic.

In Topic 1, keywords such as “textbook,” “major,” “curriculum,” “university,” and “demand” were extracted. Korean language education in Thailand initially developed around universities, with significant discussions focused on developing curricula that reflect the needs of students majoring or minoring in Korean or taking it as a general education course. Recently, research has been actively conducted on the development of curricula for special purposes in Korea, including business and tourism.

In Topic 2, keywords such as “pronunciation,” “error,” “native,” “phoneme,” and “consonant” were extracted. There has been considerable interest in pronunciation education for Thai learners. The Korean and Thai languages have different



phonetic systems. Therefore, some consonantal phonemes that do not exist in Thai and the phonological fluctuations that occur in Korean are considered difficult for Thai speakers to pronounce (Jung, 2011). Hence, scholars have actively conducted studies on pronunciation, focusing on the errors made by Thai learners from a contrastive linguistics perspective.

In Topic 3, keywords such as “expression,” “speech act,” “perception,” “pragmatics,” and “use” were extracted. Effective communication requires not only grammatical competence, including phonology, vocabulary, and grammar, but also pragmatic skills to use language appropriately in context. Since the 2000s, pragmatic research has gained attention in the field of Korean language education, with studies being actively conducted on Thai Korean learners. Notably, based on the associated keywords, research has spanned various areas, including request, refusal, and compliment speech acts.

In Topic 4, keywords such as “use,” “particle,” “strategy,” “error,” and “grammar” were extracted. Korean grammar is more complex than Thai grammar, making it a challenging area for learners. In the keyword search related to this topic, although “particle” was one of the five keywords, other vocabularies associated with “tense,” “past tense,” and “ending form” also appeared.

Finally, in Topic 5, keywords such as “culture,” “teacher,” “process,” “secondary school,” and “class” were extracted. Topic 5 had the highest number of studies, which covered diverse contents related to teacher training and Korean classes in secondary education, along with a strong interest in culture studies related to Korean language education.

The results of topic modeling analysis can be visualized in a map that includes the keywords assigned to each topic. Figure 2 shows that the five topics related to online Korean language education share the keywords “use” and “error” and highlights which keywords hold significant weight within each topic. In the figure, blue squares represent each topic, whereas red circles represent influential keywords, known as nodes. As shown in the figure, there are connecting lines (links) between each topic and its keywords. The larger the red circle and the thicker the connecting line, the stronger their influence.

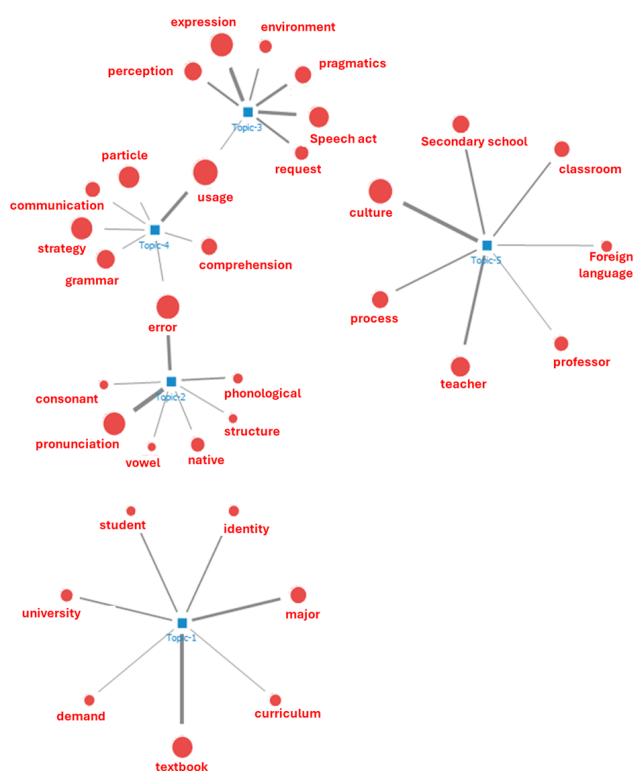


Figure 2 Topic Keyword Networking Map

(Source: NetMiner 4.4, 2024)

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Next, we examined how research topics have changed over time. Until 2010, there were fewer than 30 studies, and no distinct trends were apparent. Therefore, we divided the analysis into the 2010s and 2020s to investigate whether there are differences in research trends between these two periods.

**Table 4** Results of Topic Modeling Analysis of the 2010s

	Keyword 1 (probability)	Keyword 2 (probability)	Keyword 3 (probability)	Keyword 4 (probability)	Keyword 5 (probability)	Doc
Topic 1	pronunciation	error	phonetics	type	consonant	37
	0.048	0.034	0.028	0.026	0.021	
Topic 2	culture	curriculum	textbook	teacher	class	50
	0.041	0.035	0.033	0.024	0.022	
Topic 3	use	tense	particle	past	acquisition	37
	0.032	0.031	0.028	0.025	0.021	
Topic 4	expression	articulation	writing	vocabulary	relation	19
	0.045	0.038	0.031	0.028	0.022	
Topic 5	pragmatics	speech act	expression	comprehension	environment	35
	0.044	0.040	0.035	0.029	0.026	

From 2011 to 2020, there has been increasing interest in curriculum and textbook development. This trend likely stems from the need to create educational curricula that are suitable for university and secondary levels to stabilize Korean language education in Thailand. Table 4 also shows that research on pronunciation education stemming from differences between Thai and Korean pronunciation has been actively conducted. In addition to pronunciation, grammar has also attracted significant attention from researchers. A substantial number of studies have focused on aspects that Thai learners find challenging, including tenses and particles. Moreover, research on pragmatics and speech acts has been actively conducted during this period.

**Table 5** Results of Topic Modeling Analysis of the 2020s

	Keyword 1 (probability)	Keyword 2 (probability)	Keyword 3 (probability)	Keyword 4 (probability)	Keyword 5 (probability)	Doc
Topic 1	textbook	curriculum	development	major	purpose	19
	0.049	0.039	0.029	0.026	0.022	
Topic 2	teacher	anxiety	factor	professor	task	12
	0.033	0.027	0.024	0.024	0.022	
Topic 3	strategy	self	speaker	motivation	expression	12
	0.041	0.040	0.038	0.034	0.031	
Topic 4	meaning	use	speech act	condition	difference	17
	0.038	0.036	0.035	0.032	0.030	
Topic 5	error	grammar	phenomena	phonetics	native	17
	0.057	0.030	0.020	0.019	0.017	

Since the 2020s, research has revealed different trends as shown in table 5. Similar to the 2010s, studies on textbooks and curricula continue to constitute a major focus. However, a detailed examination of the related papers reveals that the scope of research has expanded beyond the traditional focus on secondary and university regular courses. Recent studies have increasingly addressed specialized areas such as business, tourism, and university curricula to meet

the demands of specific purposes. Notably, there has been burgeoning interest in teacher factors (Topic 2) and learner factors (Topic 3), which were not prominent in the 2010s. Research on teacher retraining and local teacher development has been conducted in various directions. From the perspective of learner factors, studies have begun to explore issues such as anxiety and self-efficacy experienced by learners during speaking and listening activities, as well as learning strategies based on individual differences.

Although studies are still limited, research in the 2020s has begun to show interest in media, including the Web and dramas. However, there appears to be relatively little focus on areas such as translation and education based on language functions, which has garnered more attention in research focused on Chinese learners.

#### 4. Centrality Analysis

Centrality analysis represents the weight or importance of a keyword within the text, which differs from simply being a high-frequency word. This method provides insights into which keywords are significant by displaying their relative importance in the document. Centrality is normalized with 1 as the highest possible value, which indicates relative metrics where higher centrality signifies a stronger influence as a node. This suggests a central position within the network.

Centrality analysis includes an examination of the degree, betweenness, and closeness centralities. The degree centrality measures the absolute level of connections that a keyword has, whereas the betweenness centrality assesses how much a keyword connects with others, indicating how it performs as an intermediary.

**Table 6** Results of Centrality Analysis

Ranking		Degree centrality		Betweenness centrality		Closeness centrality
1	use	.239669	comparison	.038629	comparison	.731206
2	pattern	.190083	use	.035772	use	.730249
3	comparison	.177686	meaning	.030800	process	.718026
4	meaning	.177686	expression	.029350	meaning	.713129
5	particle	.177686	contrastive	.026476	difference	.707998
6	expression	.177686	process	.026173	ability	.705312
7	textbook	.173554	culture	.024442	improvement	.704718
8	contrastive	.169421	grammar	.024174	grammar	.697665
9	effect	.165289	particle	.022807	comprehension	.687628
10	acquisition	.157025	textbook	.020393	effect	.680081
11	error	.148760	error	.019020	characteristics	.678152
12	difference	.148760	effect	.018726	communication	.677602
13	development	.144628	pronunciation	.018440	expression	.677054
14	culture	.140496	grammar	.018023	contents	.677054
15	types	.140496	reality	.017988	development	.673239

As shown in table 6, the top five words for degree, betweenness, and closeness centralities generally coincide, with words such as “comparison,” “use,” “pattern,” “process,” and “meaning” appearing in common. This finding indicates that many studies have been conducted by comparing Thai learners with native Korean speakers or by examining learners using patterns from a cross-cultural perspective.

To examine research trends, the degree centrality between the 2010s and the 2020s was compared, and the following results were obtained:

Table 7 Results of Centrality Analysis Over Time

Ranking		2010s		2020s
1	use	.064263	textbook	.039409
2	pronunciation	.052508	meaning	.037767
3	meaning	.048589	curriculum	.032841
4	culture	.047806	culture	.032841
5	expression	.046238	use	.031199
6	error	.039969	contents	.029557
7	process	.035266	strategy	.029557
8	particle	.033699	purpose	.027915
9	grammar	.033699	teacher	.024631
10	comprehension	.030564	factor	.024631
11	knowledge	.028997	ability	.024631
12	pragmatics	.027429	task	.022989
13	class	.026646	activity	.021346
14	difference	.026646	development	.021346
15	speech act	.026646	difference	.021346

As shown in table 7, some differences were observed in the top degree centrality words between the two decades. In the 2010s, words related to linguistic knowledge (e.g., pronunciation, grammar, and pragmatics) showed higher centrality. However, in the 2020s, the significance of textbooks and curricula increased. Moreover, words such as “strategy,” “purpose,” “factor,” “improvement,” and “task,” which were not present in the top 15 rankings in the 2010s, gained attention. Interestingly, the scope of research in Korean language education targeting Thai learners has expanded, with growing interest in various variables related to teachers and learners. Furthermore, research and development regarding various tasks and activities in the context of practical educational materials appear to be being actively pursued.

## Conclusion and Discussion

### 1. Discussion

The results of this study provide valuable insights into the trends and characteristics of Korean language education research focused on Thai learners. The analysis revealed that although the research landscape has evolved over the years, the emphasis on curriculum and textbook development remains a significant focus. This sustained interest highlights the need for educational materials that cater to the specific needs of Thai learners in the context of university and secondary education, particularly given the growing number of students engaged in Korean language studies.

Recently, there has been an increasing demand for the development of curricula in specialized areas and the improvement of existing curricula. Interestingly, although previous research has focused on curriculum and textbook development, recent studies have shifted their emphasis to aspects of classroom activities and task performance. This appears to be part of an effort to demonstrate and disseminate the effectiveness of these teaching methods through more concrete classroom activities. Sharing the effectiveness of teaching derived from teachers' experiences will also benefit future educational material development.

Furthermore, topic modeling analysis confirmed the importance of pronunciation education, grammar comprehension, and pragmatic training, which are essential elements in the learning processes of Thai students. The difficulties faced by Thai learners in Korean pronunciation stem from inherent differences in phonetic systems, indicating the need for educational approaches to enhance speaking abilities. This finding suggests the need for developing educational strategies to address linguistic errors and improve overall language proficiency. Moreover, based on the need to understand the complexities of Korean grammar, research has been actively conducted on contrastive studies related to grammar. Furthermore, the prominence of cross-cultural studies on speech acts targeting Thai learners highlights the challenges in pragmatic acquisition because of cultural differences, even within the same high-context cultural domain.

Another noteworthy trend observed in the 2020s is the increasing attention paid to teacher and learner factors in the realm of Korean language education. The emergence of research focusing on teacher retraining and local teacher development signals a recognition of educators' critical role in shaping learning experiences. Moreover, the exploration of learner factors, including anxiety and self-efficacy, highlights a shift toward a more holistic understanding of the learning process. This shift is imperative for developing effective teaching methods and learning environments that support Thai learners in overcoming the challenges associated with language acquisition.

Keyword network analysis further elucidates the interrelationships among central themes within Korean language education research. The prominence of keywords such as "comparison," "use," and "culture" suggests a robust engagement with cross-cultural perspectives, which is crucial for understanding the linguistic and social dynamics unique to Thai learners.

Overall, the increase in research related to Thai Korean learners reflects a growing academic interest in this demographic. However, it also indicates the necessity for continued exploration, especially in understudied areas, such as textbook development and intercultural communication.

## **2. Conclusion**

This study provides a comprehensive overview of the trends in Korean language education research focused on Thai learners and emphasizes the importance of adapting to the evolving educational landscape in Thailand. As Korean language education continues to develop systematically from secondary education onward, it is crucial for research in this field to expand its focus. The increasing interest in learning Korean among Thai students highlights the necessity for a robust and well-rounded approach to teaching and studying this language.

The findings confirm that the necessity for tailored educational materials and instructional strategies has never been more critical as Korean language education becomes increasingly integrated into Thai secondary schools and universities. Furthermore, the burgeoning interest in teacher training and learner psychology is promising for the future of Korean language education. Moving forward, researchers and educators must address the gaps identified in the literature, particularly in textbook development and applied linguistics. This will ensure that the academic inquiry not only enhances pedagogical practices but also aligns with the diverse needs of Thai learners.

Research based on contrastive studies of Thai and Korean has laid a solid foundation for understanding the unique linguistic challenges faced by Thai learners. However, there is an urgent need to translate these academic insights into practical applications in classroom activities. Future research should focus on identifying effective methodologies that integrate the findings of existing studies into everyday teaching practices in order to enhance the learning experiences of students.

Moreover, it is imperative to address learners' changing demands as digital learning continues to gain prominence. Educators must strive to better understand these evolving needs and adapt their teaching strategies accordingly. Emphasizing learner-centered methodologies will be essential for supporting Thai students in overcoming the specific challenges they face in acquiring Korean language proficiency.

In summary, although considerable progress has been made in Korean language education for Thai learners, ongoing research and adaptation are crucial for meeting the demands of this dynamic field. Educators and researchers can significantly contribute to the success of Korean language education in Thailand by integrating theoretical knowledge with practical classroom applications and acknowledging the influence of digital learning.

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