check for updates

Analysis of the issues that emerged in the revision of the national social studies curriculum in South Korea: Text mining and semantic network analysis of the comments at the public hearing on YouTube

Chul-Ki Cho[1] (iD)
HyeSook Kim[2] (iD)
Soyoung Lee[3] (iD)

(✉ Corresponding Author)

[1]*Department of Geography Education, Kyungpook National University, Daegu, South Korea.*
Email: ckcho@knu.ac.kr
[2]*Korea Institute for Curriculum and Evaluation, Jincheon-gun, Chungcheongbuk-do, South Korea.*
Email: sight89@kice.re.kr
[3]*Center for Educational Research, Seoul National University, Seoul, South Korea.*
Email: sylee03051@gmail.com

Abstract

In South Korea, curriculum is revised, made public and implemented under a system known as a nation led curriculum. The South Korean national curriculum was completely revised 10 times between 1946 and 2015. At present, a complete revision is underway to replace the current 2015 national curriculum which is called the 2022 revised national curriculum. This study aims to analyze stakeholders' responses to the YouTube public hearing on social studies curriculum according to the 2022 revised national curriculum in South Korea in order to understand the context and causes of the issues that emerged. Text mining, semantic network analysis and word cloud techniques were employed to identify issues. As a result, three issues were identified in the social studies curriculum: the balanced development of general elective subjects in high school; the separation of social sciences and geography and division of textbooks in middle school social studies and the separate listing of four subjects, specifically geography, social sciences, history and morals. The issues revealed in this study provide beneficial implications for future social studies curriculum development, revision as well as the development of future research.

Contents

Contribution of this paper to the literature
Issues related to the restructuring of the social studies curriculum in Korea revealed through this study contribute to future research on the social studies curriculum as well as future curriculum development and revision work.

1. Introduction

A national curriculum was established in South Korea in accordance with education-related laws. The national curriculum may therefore be viewed as having strong legal authority and serving as a basic guide for how South Korea's educational system should proceed (Ministry of Education, 2000). Changes in the national curriculum led to various changes in the educational field, including the production and distribution of new textbooks, changes in the number of subject lessons and a reorganization of the education system for pre-service teachers. These changes are made in accordance with each subject's context and situation such as Korean, Mathematics, English, Science and Social Studies in which various problems and issues are faced (Kim, 2020; Lee & Butt, 2014; Park, 2016).

Social studies have more complex and diverse issues and discourses than other subjects. It comprises the content of various social sciences and humanities, for example, politics, economics, law, sociology, cultural anthropology, geography, history and philosophy (Kim, 2020; Lee & Butt, 2014). In addition, the South Korean social studies curriculum has produced another discourse known as the social studies group. Each time the curriculum has been revised, debates between geography, history, social sciences and morals have arisen[1].

The characteristics of the main issues and discourses related to the revision of the social studies curriculum must be thoroughly and methodically considered. Meta-reflection on various texts and discourses reveals major issues facing the social studies curriculum and can provide useful implications and perspectives that can be referenced for future curriculum revision. Although attempts have been made to analyze various discourses related to the social studies curriculum in South Korea, the analyses have focused mainly on curriculum documents and academic research papers (Jho, 2015; Kim, 2016; Kim, 2012; Lee, 2017a; Lee, 2017b; Lee & Ko, 2015). Curriculum and academic research papers usually contain issues related to social studies curriculum content. The public hearing, the last procedure for researchers to announce the process publically as well as the results of Cha et al. (2021a) and Cha et al. (2021b) for the 2022 revised national curriculum have led to various discourses undertaken by stakeholders including professors, teachers, related institutions and parents. However, it was challenging to record the numerous perspectives expressed by stakeholders during public hearings conducted during the previous curriculum revision. Furthermore, there was a strong tendency to volatilize and only documents were retained. A public hearing was held both online and offline as well as broadcast live on YouTube because of the COVID-19 restrictions. During the live YouTube broadcast, many stakeholders who watched the public hearing online presented their opinions as comments. Subsequently, the researchers downloaded the entire commentary and converted it into text. In other words, if many discourses related to the revision of the curriculum were volatilized in the past because of realism and immediateness, this was the first occasion during which discussions were fully recorded and analyzed online and offline simultaneously.

Accordingly, the purpose of this study was to analyze the stakeholders' responses by employing the comments of the public hearing which was broadcast live on YouTube to derive issues related to the revision of the social studies curriculum and text mining techniques were used to derive the issues. This study provides beneficial implications for future curriculum development and revision as well as the development of research on future social studies curricula.

2. Context: The Process of Revising the National Social Studies Curriculum in South Korea

After the government revised the curriculum in 2007, an occasional revision system in which the people's needs were assessed was implemented. However, the national curriculum is revised completely every seven to eight years. The curriculum revision procedure generally acquires the primary points of general curriculum revision in accordance with the results of several basic policy studies. The results of such studies are presented through general public hearings as well as those specifically related to each subject. After collecting opinions from various stakeholders, they are presented through the coordination process of the MOE. Subsequently, a general curriculum for each subject is developed through policy research. Minimal changes are possible in the curriculum development stage.

The purpose of the 2022 revised national curriculum is to strengthen education in response to future social and environmental changes in language, mathematics and digital literacy which are the basis for learning various subjects. In addition, the curriculum reflects the meaning and values that encompass ecological transformation education, democratic citizenship education, work and labor in educational goals and an endeavor is made to link them to all subjects. This curriculum is also characterized by strengthening the autonomy of the school curriculum which is based on the decentralization and enhancement of career-linked education at the time of transition to the school level. The implementation of a customized curriculum for high schools through the introduction of the high school credit system is the most notable change in this curriculum. The high school credit system affords students the opportunity to select and complete elective subjects in accordance with their career intentions and aptitude after completing mandatory subjects. Students graduate by acquiring and accumulating credits for subjects that meet the relevant criteria. In order to allow students to choose elective subjects, the policy underlying this curriculum revision involved reducing the number of general elective subjects that correspond to the current SAT subjects (Ministry of Education, 2021a, 2021b, 2021c, 2021d). Consequently, the largest range of changes can be found in high school.

In the 2022 revised national curriculum, there are considerable changes in the social studies curriculum which were based on four major policy studies Park et al. (2021); Cha et al. (2021a) and Cha et al. (2021b). Park et al.

---

[1] In South Korea, social studies generally refers to geography, history, and the social sciences. When morals are included, although these subjects are classified as the social studies group, they are not clear in the curriculum table. Therefore, in this paper, in order to be concise, they are referred to as social studies.

(2021) provided an approximate design of the direction of the revision of the social studies curriculum in line with the 2022 revised national curriculum. Cha et al. (2021a) and Cha et al. (2021b) conducted an in-depth examination of how elementary, middle and high school social studies subjects will be organized in the 2022 revised national curriculum.

This study was based on Cha et al. (2021a) who prepared a plan to restructure the social studies curriculum. They focused on the analysis of various discourses presented at public hearings and gathered opinions (Cha et al., 2021b). As noted previously, the latter study examined the organization of social studies subjects; the areas that constitute social studies were debated. Furthermore, many diverse opinions were debated at the public hearing on October 8, 2021. The results of the second study were partially adjusted after opinions raised at the public hearings were discussed at the MOE. These were finally reflected in the *key matters of the 2022 revised curriculum* (Ministry of Education, 2021d).

A third study (2021.12~2022.5.) will be conducted to develop the content and achievement standards for each of the social studies subjects which were determined through *key matters of the 2022 revised curriculum* (Ministry of Education, 2021d). Moreover, based on this third study, a fourth study (second half of 2022) will be conducted to establish teaching and learning and evaluation directions. These research results will be announced in the form of curriculum documents at the end of 2022 and will be applied in stages, starting with the first and second grades of elementary school in 2024 and to all grades by 2027[2].

The procedures related to the revision of the 2022 social studies curriculum are arranged in Figure 1.
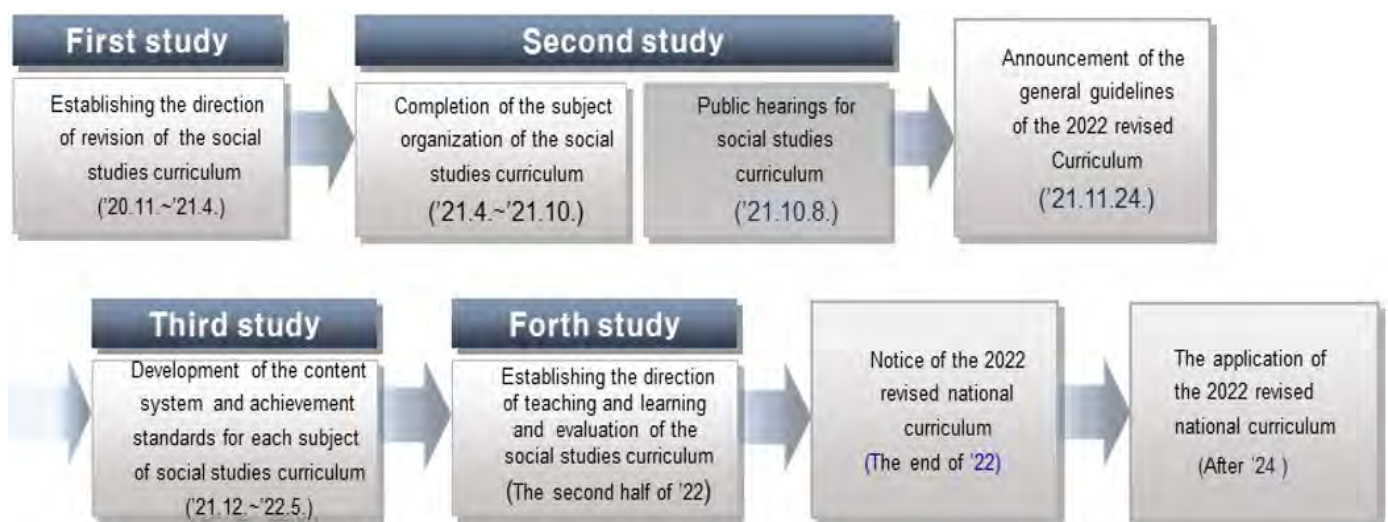

Figure 1. The development procedure of the 2022 revised social studies curriculum.

3. Research Method

3.1. Meaning of Text Mining and Semantic Network Analysis

The purpose of this study was to analyze the responses of stakeholders at public hearings for restructuring the social studies curriculum through YouTube comments and subsequently, derive major issues related to the revision. Accordingly, text mining techniques and semantic analysis were employed.

Text mining is the technique used to extract useful information by exploring interesting patterns, tendencies and rules from source data (Feldman & Sanger, 2007; Nahm & Mooney, 2002). Source data refers to a set of documents or a bundle of texts. In other words, text mining is used to extract valuable information contained in text. Subsequently, an analysis of units such as words or sentences is conducted and the values of the analysis are derived through various mathematical calculations or statistical algorithms are used to acquire beneficial information and realize a meaningful interpretation. Analysis allows the extraction of information that has not been identified previously (Gaikwad, Chaugule, & Patil, 2014). News articles and comments have been collected to analyze policy issues Kim (2021).

Semantic analysis is widely used to identify themes and semantic structures hidden in text among the various text mining techniques, and shed light on the semantic relationship between conceptual words (Doerfel & Barnett, 1999; Han, 2003; Lee, 2014). Words or phrases that are units of information are placed in the concept of forming each node, the connection between concepts is expressed as a link and the meaning is interpreted through the co-occurrence relationship of words revealed by links. Characteristics may be represented by various indicators by considering the number of connections between nodes and links, connection strength and directionality. Thus, objective indicators enable the analysis of various aspects.

Therefore, the advantage of semantic network analysis is the ease with which the structural relationship between concepts can be understood (Jang & Barnett, 1994; Park & Jeon, 2004). Thus, semantic analysis can be used as a useful methodology for grasping the frequency of keyword appearance, keyword (node) and network connection (structure) within a text. It calculates analysis indicators such as density and degree of centrality. Density indicates how many relationships the overall concept of a network has; degree of centrality is a quantitative indicator of how closely one word is related to another. The higher the degree of centrality, the more it is located at the center of the network.

In essence, semantic analysis encompasses collecting text to be analyzed, selecting keywords, identifying relationships, constructing networks and analyzing network characteristics (Lee & Butt, 2014). In the first step, text is collected and keywords are selected, making it similar to general text mining. In other words, text data suitable for the purpose of analysis is collected and only keywords that are to be analyzed are selected through

---

[2] In South Korea, elementary, middle and high schools have a 6-3-3 academic system. The 2022 revised national curriculum will be applied sequentially to first and second graders in elementary school in 2024; third and fourth graders in elementary school, first graders in middle school and first graders in high school in 2025; fifth and sixth graders in elementary school, second graders in middle school and second graders in high school in 2026; and third graders in middle school and third graders in high school in 2027.

various pre-processing processes. The second step which may be regarded as the most important aspect of semantic analysis involves identifying relationships. When the selection of keywords is completed, the individual text units that are usually analyzed are set as one document and the keywords that appear in each document are listed. This may be expressed as a vector of words which in turn may be expressed as a document-term matrix. The relationship between keywords is identified through this matrix. The co-occurrence relationship is the most widely used relationship between keywords (Lee, 2014). Co-occurring words refer to a relationship in which two word pairs appear simultaneously within a given text range. People use words that are closely related to each other to represent a specific theme or meaning that is premised to be expressed as a co-occurrence relationship (Lee, 2018). The third step encompasses constructing a network based on the identified relationship, a visualization of the network between words. In the final step, the meaning of the text is interpreted by analyzing various characteristics of the visualized network.

Although Korean social studies have employed semantic analysis (Jeon, Kim, & Park, 2012; Kim, 2020; Kim, 2021; Lee, 2017a; Lee, 2017b; Lee & Ko, 2015; Park & Chang, 2018) in comparison to other fields such as science education.   Semantic analysis has not been used in social studies. These studies have collected text primarily from official textbooks, national curriculum documents and academic journal papers. The frequency of common keywords has been subsequently analyzed. However, Kim (2020) noted that these studies are limited to diverse contexts that affect the formation of academic discourse in the social studies curriculum. In the process of developing a new curriculum and subjects, although procedures such as public hearings and public discussions have been conducted, the perspectives of various stakeholders may have been omitted. Therefore, YouTube comments at public hearings may be distinguished from official documents. The semantic analysis for the YouTube comments was meaningful because the vivid voices raised at the public hearings to restructure the social studies curriculum were used as text to shed light on the semantic structure and attempt a quantitative approach to discourse analysis.

3.2. Analysis Method

Morpheme analysis by using the *KoNLP (Korean Natural Language Processing)* package[3] of the R program was conducted to analyze the 2,283 comments. The results revealed that 22,000 words that comprised nouns, verbs, and adjectives were extracted. In general, only nouns are extracted for text mining in many studies. However, the meaning of a noun may be dependent on the adjective or verb that modifies it Kim (2021). Words that were meaningless or difficult to grasp had been included and thus they were processed again in order of frequency. Subsequently, frequently appearing and universal words were excluded, including *this, us, thoughts, opinions, argumen ts* and *words*. In addition, the spacing of words or expressions was unified for example, *general elective, general elective subject and general elective area*. Through this process, frequently appearing keywords were identified through frequency analysis of the organized data. In addition, the co-occurrence frequency between words was calculated by employing the *Widyr* package of the R program. This is one of the most widely used methods in semantic analysis to examine the relationship between keywords. All the frequencies of co-occurrence (total number of co-occurrences = 95,554) were too complex to find any pattern, the semantic network was limited to cases where pairs occurred together more than 25 times. The degree of centrality was calculated by using the *tidygraph* package in order to examine how closely one word (node) is connected to another word (node) and   how frequently words appeared. Accordingly, the semantic network was visualized using the *ggraph* package.

In addition, in order to confirm which words with a high degree of centrality were closely related, the correlation coefficient (Phi coefficient) was calculated using the *widyr* package. Thus, a value indicates how often two words are used together (Kim, 2021; Silge & Robinson, 2017). Accordingly, major issues were derived and related keywords were visualized through the word cloud. The *ggwordcloud* package was used for word cloud visualization. The data analysis method is depicted in Figure 2.
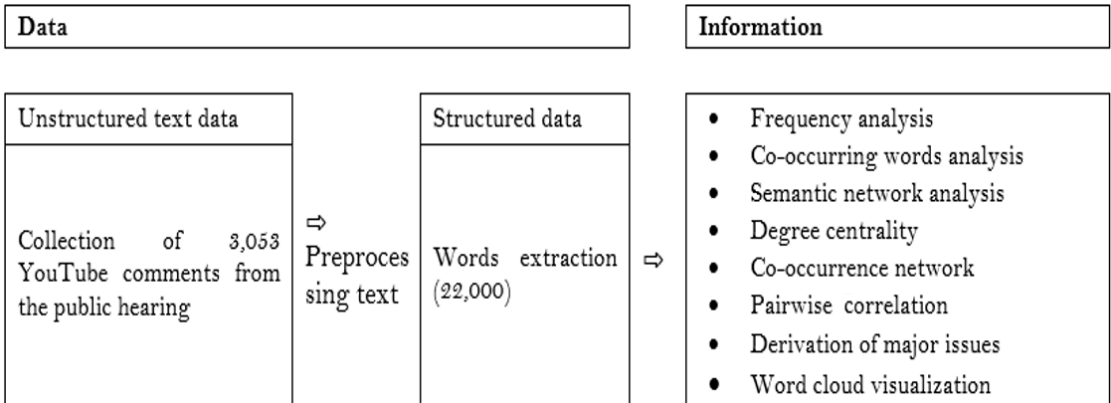
Figure 2. Data analysis method.

4. Results

4.1. Analysis of the Frequency of Occurrence of Words and Extraction of Co-Occurrence of Words

In this study, attempts were made to determine the frequency of frequently used words in public hearing comments prior to conducting semantic network analysis. Although several criteria may be employed to select keywords (Lee, 2014). Accordingly, the 30 words with the highest frequency were identified in Figure 3. In this process, subject names such as *geography* and *social sciences* as well as general words used commonly were excluded from the frequency analysis because this made it difficult to identify specific problems and issues. Furthermore,

---

[3] *KoNLP* is a package that analyzes morphemes by parts of speech depending on the dictionary (1, 213, 109 words registration) in which Korean data are mounted on the program. This program can extract words for each desired part of speech. However, sometimes, researchers have to process words that are not registered in advance.

words with similar meanings were integrated when calculating frequency[4].
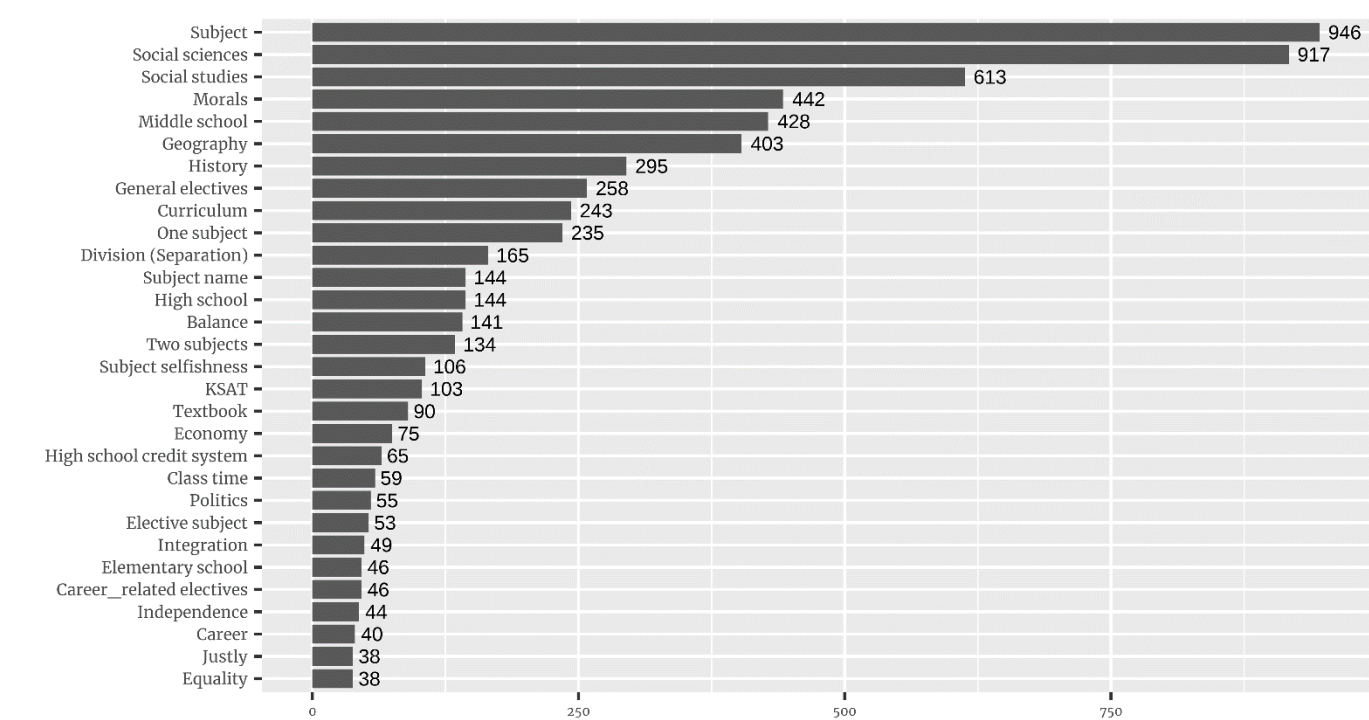
Figure 3. Top 30 words with the highest frequency in the comments at the public hearing.

The word that occurred most frequently was *subject*. In the process of unifying terms, *subject* and *subject matter* were regarded as *subjects*. Social studies comprise four subjects, namely, geography, history, social sciences, and morals which inevitably occur a great deal. While *middle school*, the term with the second highest frequency was mentioned 428 times, *high school* occurred 144 times. The former term occurred more frequently than the latter term because textbooks employed in middle school include all four subjects. On the contrary, with regard to the high school social studies curriculum, *general elective subjects (courses)*, *career-related electives*, the *high school credit system* and the *KSAT* (Korean Scholastic Aptitude Test) occurred frequently. The most important change in the 2022 revised national curriculum is the introduction of the high school credit system which has emerged as a significant issue in how to set elective courses for high school social studies. In addition, words such as *balance*, *equality* and *fair* occurred frequently. In response to the disproportionate organization of high school elective courses in subjects of social studies, it may be interpreted that the 2022 revised national curriculum should be balanced with regard to the development of elective courses in high school social studies. A number of comments included, "four subjects of social studies should be treated fairly" and "equivalent and fair separation of the four subjects is necessary." In addition, *science* was frequently mentioned. The comments included "let's go equally in history, geography, social sciences and morals like science" and "We need a fair 1/n like science." In South Korea, the high school science curriculum has always been balanced with 1/n logic to ensure subjects such as physics, chemistry, biology and geography secure class time. Therefore, it was interpreted that stakeholders insisted on maintaining a balance of 1/n in social studies such as science.

4.2. Semantic Analysis: Degree of Centrality Analysis and Visualization of the Co-Occurrence Network

Although frequency of words is a widely used method to comprehend keywords easily, it is difficult to understand the context or semantic structure in which words are used. Accordingly, we tried to shed light on the relationship between words by analyzing the frequency of the co-occurrence of keywords. As noted previously, co-occurrence refers to when two words appear simultaneously within the scope of a specific criterion (Lee, 2014). The range of text that determines the co-occurrence relationship is dependent on the research topic or data. One comment was employed as the criterion in this study and thus, the frequency of two words appearing simultaneously in one comment had to be determined. The co-occurrence frequency matrix of keywords identified in this manner is the basis of the semantic network. Kim (2021) noted that if the co-occurrence relationship is expressed in the form of a network, it is possible to understand in what context each word was used with other words.

The *widyr* package of the *R* program and the *tidygraph* package were used to determine the frequency of co-occurrence and degree of centrality respectively. The semantic network was visualized in accordance with the frequency of co-occurrence; the calculated degree of centrality was applied to the node size. The larger the node size in the visualized semantic network, the greater the degree of centrality. The *ggraph* package was used to visualize the semantic network. Furthermore, this was extracted and expressed only when the pair of co-occurring words appeared more than 25 times in Figure 4. The top 20 words with a high degree of centrality are displayed in Table 1.

---

[4] The words excluded from the frequency analysis include students (242), area (170), teacher (167), content (140), major (89), academic (89), development (52), need (46), specific (46), and characteristics (43). Because these words have similar meanings, the words integrated into one are division (of textbook) (96) and separation (of social sciences and geography subjects) (69). All three terms mean that the middle school social studies textbooks are divided into two volumes: geography and social sciences.
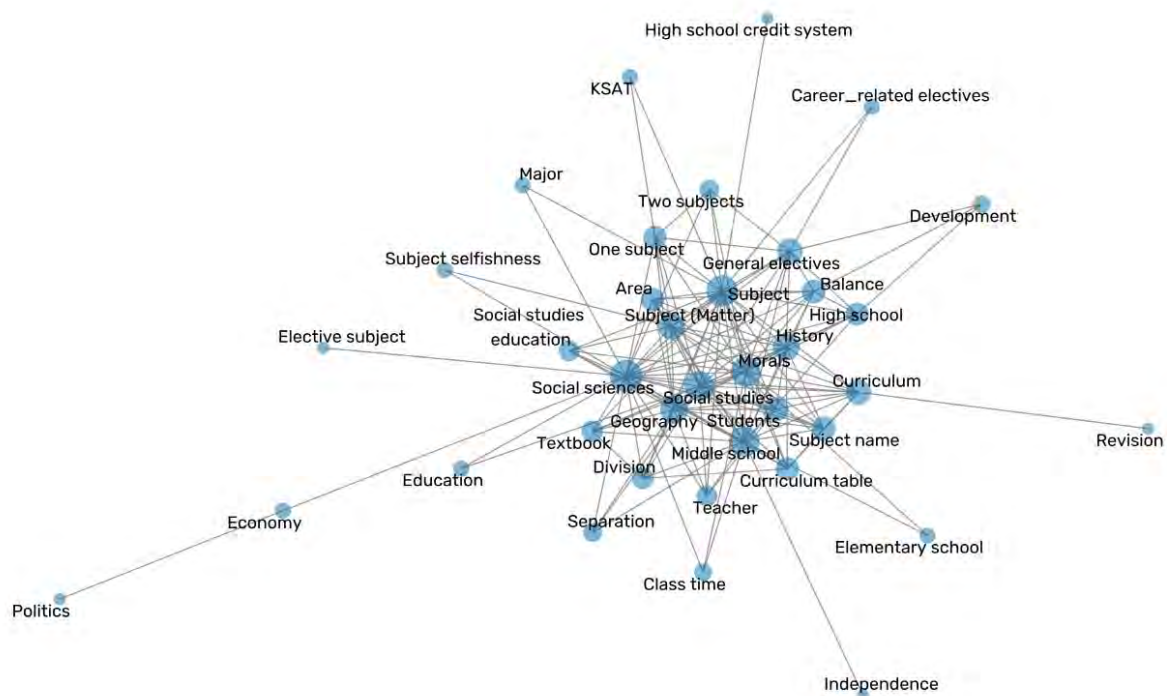
Figure 4. Visualization of co-occurrence network.

Table 1. Top 20 words with high degree of centrality.

Ranking	Keywords	Degree centrality	Ranking	Keywords	Degree centrality
1	Middle school	46	12	Separation of geography and social sciences subjects	8
2	General electives	26	13	Class time	6
3	Balance	20	14	Subject selfishness	4
4	Subject name	20	15	Major	4
5	Area	18	16	Elementary school	4
6	One subject	18	17	KSAT	4
7	High school	18	18	Career-related electives	4
8	Curriculum table	18	19	Economy	4
9	Textbook	14	20	Elective subject	2
10	Division (of textbook)	14	21	High school credit system	2
11	Two subjects	10	22	Independence	2

Note: It was suggested up to the top 20, but there are cases where the degree centrality value is the same, so the total number exceeds 20.
Each subject name is excluded from the calculation of degree of centrality.

Words with a high degree of centrality act as hubs connecting multiple concepts (Lee, 2017a; Russo & Koesten, 2005). The results revealed that *middle school* had the highest degree of centrality. To examine this more closely, we searched for words that co-occurred with *middle school* and found the top six words comprised four subject names, namely, *social sciences* (256), *geography* (123), *morals* (96), *history* (80), *social studies* (144), and *subjects* (114). The 8th and 10th most co-occurring words were *textbook* and *division of textbook*. It is apparent that there were many comments related to the separation of social studies textbooks, including the separation of social sciences and geography in the middle school social studies curriculum. In addition, *high school* appeared 73 times in conjunction with *middle school*. One may assume that teachers were not only interested in specific school levels but also in the connection between the middle and high school curricula. The following comment represented this notion: "It is more important to educate by making good use of the specificity of subjects in social studies in middle school and to organize middle and high school learning contents in sequence." In relation to the full implementation of the high school credit system and guaranteeing students' choice of subjects, many comments expressed concern about students entering high school without the subject name being used in middle school. *General electives* were revealed to have the second highest degree of centrality. Along with *general elective subjects*, *one* or *two subjects* also showed a high degree of centrality. It is thus apparent that there were many discussions on the number of *general elective* subjects related to the four social studies subjects. As noted previously, there is an imbalance between geography, social sciences, history and morals in the high school social studies curriculum. In other words, there are more general elective subjects in social sciences than in other subjects. Moreover, the supply and demand of teachers are affected by what general elective students choose.

In order to focus more on the reactions of stakeholders to *geography*, the words that co-occurred with *geography* were listed in Table 2. Of the four subjects in the social studies curriculum, *geography* co-occurred the most with the *social sciences*. In addition, while *middle schools* co-occurred with *geography* more than *high schools* both had a high frequency of co-occurrence with the subject. In addition, *division of textbooks, separation of geography and social sciences subjects, independence* and *curriculum table* also had a high frequency of co-occurrence with *geography*. In South Korea, while history and morals are separated from social studies in the middle school social studies curriculum table, only social sciences and geography are integrated into social studies. Consequently, social studies are recognized as social sciences. However, there is a lack of supply and demand for geography teachers and students generally exhibit a lack of awareness of subjects related to geography. Some stakeholders had a problem with this as they have continued to insist on separating geography from the social studies curriculum and publishing geography textbooks separately. In addition, *general electives* were frequently mentioned in conjunction with *geography*.

Table 2. Words co-occurring with geography.

Ranking	Pair of co–occurrence		Frequency	Ranking	Pair of co–occurrence		Frequency
1	Geography	Social sciences	169	11	Geography	Subject name	24
2	Geography	Subject (Matter)	126	12	Geography	Separation of geography and social sciences subjects	24
3	Geography	Middle school	118	13	Geography	High school	20
4	Geography	Social studies	104	14	Geography	Independence	19
5	Geography	Morals	86	15	Geography	Major	19
6	Geography	History	73	16	Geography	Balance	19
7	Geography	Curriculum	36	17	Geography	Curriculum table	18
8	Geography	Division (of textbook)	28	18	Geography	General electives	15
9	Geography	One subject	27	19	Geography	Two subjects	14
10	Geography	Textbook	26	20	Geography	Tie	12

Due to the nature of public hearings in social studies, *geography* was mentioned in conjunction with the *social sciences*. Accordingly, the *stringr* package of the *R* program was used to extract sentences in which two words were mentioned simultaneously. A geography-related stakeholder stated that "there is no name for the *geography* subject in the middle school curriculum. Please separate it from the *social sciences* and name the subject *geography*." In middle schools, social sciences were often mentioned in relation to separating geography from them. Another geography-related stakeholder stated, "there have also been several cases of correction after announcing *geography* as a *social sciences subject*". Comments that were presumed to have been written by a teacher majoring in subjects other than geography were prevalent. These comments were primarily related to *general electives*. Accordingly, it was possible to examine the position of other subjects when examining the following comments made about geography:

- Geography is the only subject that can criticize the social sciences for their selfishness.
- Geography is criticizing the general elective subjects proposed by the social sciences. History does not criticize the general elective subjects proposed by the social sciences. However, it does not make sense for morals to criticize the general elective subjects proposed by the social sciences.
- I think geography can fully see the two general elective subjects proposed by the social sciences as subjects of selfishness.
- I personally think that geography in high school should insist on two general elective subjects like social sciences.

4.3. Deriving Key Issues and Visualizing them as Word Clouds

An analysis of the frequency of co-occurrence of words facilitates an understanding of the structural meaning of the text rather than a simple analysis of the frequency of a single word. However, if a word represents a specific topic or issue, it may not be easy to comprehend the context because words such as *social studies* appear a great deal in general. Accordingly, beyond examining words with a high frequency of simple co-occurrence, we extracted words with relatively high relevance. Consequently, the Phi coefficient[5] was employed to determine how two words were used together (Silge & Robinson, 2017). Specifically, the Phi coefficient was calculated using the *widyr* package of the *R* program only for six words with a high degree of centrality to determine major issues (see Table 1). The top six words with a high degree of centrality and the top 10 words with high correlation coefficients are depicted in Figure 5.
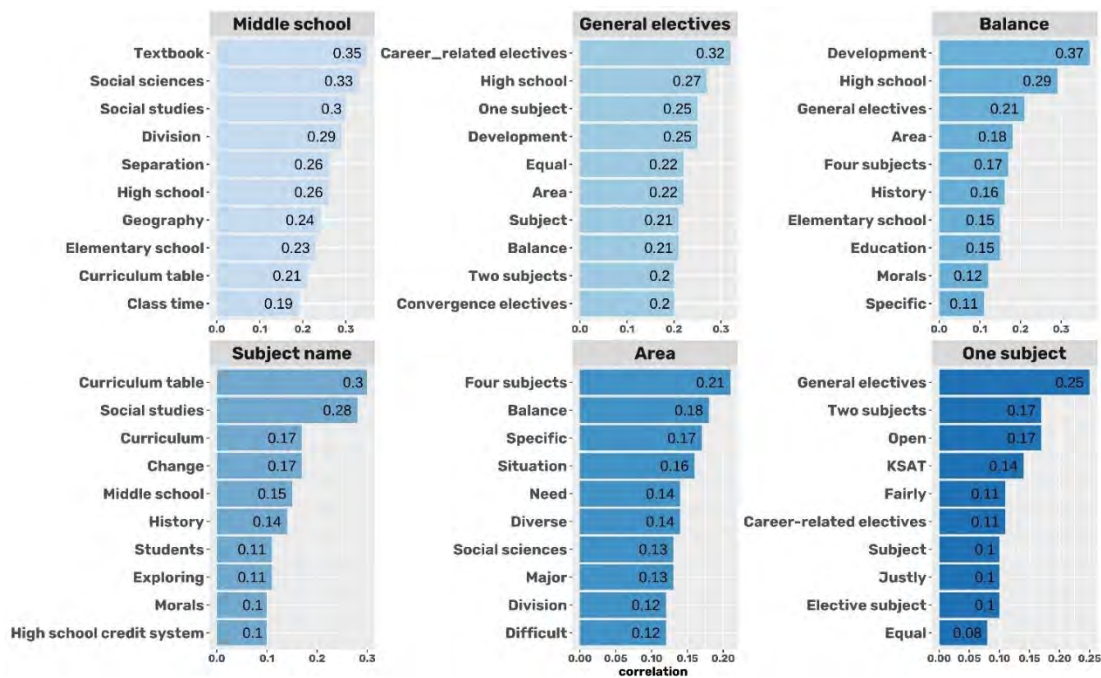

Figure 5. Correlation coefficient (Phi coefficient) of keywords.

---

[5] Refer to Silge and Robinson (2017) for an equation of the Phi coefficient and a detailed description.

As noted previously, *middle school* was the key word with the highest degree of centrality. However, as a result of calculating words with high relevance, it was found that there was a slight difference between words with a high frequency of co-occurrence. For example, when calculating the frequency of co-occurrence, *textbook* was the eighth most frequently mentioned word along with *middle school* but when examining its relevance through the Phi coefficient, both *textbook* and *middle school* were revealed to be the most relevant. There were numerous stories about a *textbook* when comments related to *middle school* were posted. The key word with the second highest degree of centrality was *general electives*, the most relevant word was *career-related electives*. Discussions on both terms were held together. Furthermore, in *high school, one subject, development* and *equal* was found to have a significant relationship with *general electives. Balance* was the key word with the third highest degree of centrality and the top five words that were highly related to *balance* included *development, high school, general electives, area* and *four*. Accordingly, the issue can be summarized as the balanced development of general electives in four areas (subjects) of high school social studies with the *name of the subject* as the key word with the fourth highest degree of centrality. It was most related to the *curriculum*. Geography is the only subject that does not have a subject name. *Area (subject)* was the key word with the fifth highest degree of centrality that can lead to issues related to "balance of four areas (subjects)." *One subject (matter)* was the key word with the sixth highest degree of centrality. In addition, *elective subjects* and *career-related subjects* as well as *fairly, justly* and *equally* were extracted as words that were highly related to them. This is related to the issue of general elective subjects in high school. Finally, when words with a high degree of centrality and those that were highly correlated with the former were combined, the issues related to the social studies (geography) curriculum could be classified into three categories (see Table 3). The extracted words related to these three issues and visualized by employing the *ggwordcloud* of the *R* program are depicted in Figure 6.

Table 3. Three issues related to the revision of the social studies curriculum.

Ranking	Issues
1	Balanced development of general elective subjects in high school.
2	Separation of social sciences and geography subjects and division of textbooks in middle school social studies.
3	Four subjects (Geography, social sciences, history and morals) in the social studies curriculum should be separately indicated in the curriculum table.

Issue 1. General elective subjects in high school.
When visualized, subjects and names of each subject (4 subjects) are excluded.

Issue 2. Separation of subjects and division of textbooks in middle school social studies.

Issue 3. Indication of four subjects in the curriculum.
Figure 6. Word cloud for three issues.

The most controversial of the three issues was the content of the balanced development of general elective courses in high schools. The comments mainly criticized the "selfishness of certain subjects." In addition, teachers emphasized the importance of a balanced development of general elective courses in relation to the implementation of the high school credit system. On the contrary, comments that expressed disagreement comprised issues related to the specificity of the subject and criticism of the recommendation.

There were numerous views on the separation of geography from social sciences in middle school allowing teachers with expertise in each field. However, this system was thus criticized: "It is very unfortunate for both teachers and students to teach other subjects without knowing them well. Please separate the social studies and let us only teach our major." Another added, "Please remove the out-of-field teacher system. I think it is not reasonable to pass the teacher recruitment test as a major subject and teach subjects other than the major." Social studies in the curriculum were also raised. Although the curriculum is the basis of curriculum organization it was criticized and changes were demanded because *geography* was not included in the curriculum.

Various opinions were expressed on other issues. With regard to the balanced development of the social studies curriculum, some expressed their thoughts on how morals and history should be organized in the elementary and middle school curriculum. One suggested changing the name of *social studies* because *social studies* was believed to be biased and thus a proposal was made to change it to *democratic subject*, *humanities*, or *civic* . Many have criticized the way the curriculum is organized with regard to the four social studies subjects. There were also many opinions on education policy. While some agreed with the high school credit system, others were opposed to it. In addition, some expressed dissatisfaction that the positions of teachers were not sufficiently reflected in the curriculum revision process. Finally, the issue of the curriculum changing continuously without continuity.

5. Discussion and Conclusion

The history of conflict related to the revision of the social studies curriculum in South Korea is deep-rooted. In the 2007 revised social studies curriculum, there was much conflict related to the distribution of subject areas. The introduction of the five-day school week increased discussion allocated to geography, history and the social sciences (Kang & Mo, 2013). In the 2007 revised curriculum, the SAT subjects related to social studies included 13 elective subjects which comprised three geography subjects, three history subjects, four social sciences subjects and three morals subjects. This imbalance was a result of the questions raised by specialists in the fields of social sciences, economics and law (Kang, 2015). There was a demand for the reduction of elective subjects because of the policy on the learning burden placed on students in the 2009 revised national curriculum. In response to the demand to distribute elective subjects "equally like science," two subjects for each area of social studies were discussed. However, nine subjects were related to geography, history and morals. At this time, Korean history was designated as a KSAT and mandatory subject because of public opinion on the Korean geopolitical situation.

This stance was maintained during the 2015 revised of the national curriculum. In the evaluation system of the KSAT, advantages and disadvantages among the elective subjects emerged. The students rated *life and ethics* and *society and culture* as their first and second choices respectively. These subjects are relatively easier than those in other elective subjects. Thus, students' balanced learning opportunities for social studies subjects were reduced which led to an imbalance of teacher supply and demand[6]. This imbalance was not only related to the school system but also linked to academics, educational specialists and teachers. In this context, the balanced development of high school elective courses in the 2022 revised national curriculum especially the balanced development of general elective courses was a debated issue. The issue of "balanced development of general elective subjects in high schools" was discussed at the public hearings. We are of the opinion that it is imperative to resolve this issue in the future.

The separation of subjects and division of textbooks in middle school has been strongly required since the 2015 revised national curriculum and is also in line with the demand for the improvement of the curriculum. Social studies, history and morals are included in the curriculum while geography is not[7]. This had a significant influence on the subject integration tendency of general guideline development researchers in the national curriculum who determine the main governance of the national curriculum. In South Korea, social studies are viewed as a "simple term of association or bundle of various subjects or quantities" as well as a "single subject name with an integrated character" (Kim, 2015). Consequently, they have constantly attempted to integrate each field of social studies and avoided sub-dividing them. In elementary schools, this integration was to some extent feasible. However, in middle schools, it remained at the level of mechanical integration. Integrated science in high schools is a parallel combination of physics, chemistry, biology and earth science. Korean social studies are integrated partially in elementary, middle and high schools. Furthermore, colleges of education that train secondary school teachers award teacher certificates in the social studies field. Teachers who have not majored in one of the fields nonetheless teach geography and social sciences in middle school. Consequently, there have been continuous demands to improve teaching (Cha et al., 2021a; Joo et al., 2021; Kang, 2015; Park et al., 2021; Park & Jeon, 2004). In the 2015 revised national curriculum, the researchers agreed to separate the social studies curriculum and divide textbooks into social sciences and geography[8]. The MOE did not adopt this recommendation. This accordingly led to the 2022 revised national curriculum. Teachers in each field of social studies actively supported the survey that middle school social studies be separated by area in the 2022 revised national curriculum. The separation of middle school

---

[6] As of 2020, the number of secondary school teachers' certificates in social studies included 8,837 in history, 7,665 in morals, 7,581 in social sciences, and 4,858 in geography (2020 Education Statistics), significantly less in geography.

[7] The social studies in the curriculum table of the 2015 revised national curriculum encompassed elementary schools and were grouped together with social studies and morals. Social studies include geography, history, and the social sciences. In middle schools, social studies (including history and morals) are noted in the curriculum table. Textbooks employ social studies, history, and morals. In high school, social studies (including history and morals) can be found in the curriculum table.

[8] Researchers who participated in the development of a geography curriculum for middle school social studies in the 2015 revised national curriculum surveyed teachers on the division of middle school social studies textbooks into social sciences and geography. The results revealed that 97.0% of geography teachers and 91.0% of social sciences teachers agreed to the division (Park, 2016). In addition, in a basic study related to the 2015 revised national curriculum, the researchers agreed that middle school social studies should separate subjects and organize the contents. Accordingly, achievement standards were also developed separately.

471

social subjects, division of textbooks and improvement of the curriculum continued[9] through public hearings and statements. A study conducted by the National Education Council analyzes interests in the development process of the national curriculum and seeks directions for coordination in social studies. It was noted that social studies needed to maintain its authority and status as a divisional subject, be adopted as a mandatory subject and receive more class time (Kim, 2021). There have been numerous conflicts related to class time and curriculum organization within each area of social studies that have become difficult to solve through the autonomous coordination between geography, history and the social sciences (Kang, Mo, & Cha, 2011). As a result of efforts in the field of geography in the 2022 revised national curriculum, the general elective subjects of the high school social studies curriculum will be developed equally in the areas of geography, history, social sciences and morals. However, there remains an imbalance in the number of subjects by area in the newly created career-related subject and convergence elective subject[10]. The separation of subjects in middle school social studies, the division of textbooks, and the improvement of the curriculum table remain unresolved tasks.

The revision of the national curriculum may be regarded as a struggle from the perspective of geography. The conflict related to social studies in each revision of the national curriculum may be embarrassing for the MOE. However, since the revision of the national curriculum is not just a matter of one subject, one school level or one area, it is difficult to consider and balance relationships with other subjects[11]. One of the most important problems South Korea is experiencing is a sharp decline in the school-aged population.

Consequently, teachers may have to teach several subjects in small schools. In the recently announced plan to develop the teacher training system (Ministry of Education, 2021e), the government stated its intention to strengthen a teacher's multi-curricular teaching ability.

The number of colleges is decreasing steadily and universities are at the limit of innovative restructuring. Therefore, if the social studies department of a middle school is separated into geography and social sciences, the number of teachers who teach those subjects will be officially higher in small schools with a small school-aged population. There is a structural limit to neglecting or condoning this situation until teachers integrate various majors in social studies through the reorganization of the teacher training system. However, South Korean education in preparation for a future society fosters creative talents with expertise through education that is suitable for students' aptitude, interest and career. The introduction of the high school credit system is such an endeavor. One might question the ideal direction for Korean education to progress in a somewhat contradictory system that seeks subject specialization and segmentation in high school, yet integration in elementary and middle schools. Furthermore, is it fair to deprive teachers with academic expertise of the opportunity to teach their major subjects even if the school population is declining? One may also question whether the policy of training professional teachers with multilateral competence will be successful. Finally, one may ask whether it is feasible to cultivate talent that can follow increasingly differentiated and sophisticated academic development while solving realistic challenges. These questions are not limited to South Korea rather various situations throughout the world should be reviewed.

References

Cha, J., Kim, H., Park, J., Bae, H., Kim, S., Cho, C., . . . Cha, S. (2021a). *A study on the restructuring of the curriculum of the social studies group to cultivate competency*. Sejong: Ministry of Education.

Cha, J., Kim, H., Park, J., Bae, H., Kim, S., Cho, C., . . . Cha, S. (2021b). *Data collection of public hearings for restructuring the curriculum of social studies groups to cultivate competency*. Sejong: KICE and MOE.

Doerfel, M. L., & Barnett, G. A. (1999). A semantic network analysis of the international communication association. *Human Communication Research, 25*(4), 589-603. https://doi.org/10.1111/j.1468-2958.1999.tb00463.x

Drieger, P. (2013). Semantic network analysis as a method for visual text analytics. *Procedia-Social and Behavioral Sciences, 79*, 4-17. https://doi.org/10.1016/j.sbspro.2013.05.053

Feldman, R., & Sanger, J. (2007). *The text mining handbook*. Cambridge: Cambridge University Press.

Gaikwad, S. V., Chaugule, A., & Patil, P. (2014). Text mining methods and techniques. *International Journal of Computer Applications, 85*(17), 42-45. https://doi.org./10.5120/14937-3507

Han, K. (2003). The meaning and research agenda in network analysis as social science methodology-based on semantic network analysis. *Research in Social Studies Education, 10*(2), 219-235.

Jang, H.-Y., & Barnett, G. A. (1994). Cultural differences in organizational communication: A semantic network analysis 1. *Bulletin of Sociological Methodology, 44*(1), 31-59. https://doi.org/10.1177/075910639404400104

Jeon, J., Kim, D., & Park, S. (2012). Semantic network analysis on the contents in the middle school social studies textbooks: A comparative analysis on the chapter of law and society-culture. *Journal of Korea Law-related Education Association, 7*(2), 181-202. https://doi.org/10.29175/klrea.7.2.201212.181

Jho, D. (2015). Analyzing the trend and discourse of the research on pedagogical content knowledge in social studies. *Theory and Research in Citizenship Education, 47*(2), 115-143. https://doi.org/10.35557/trce.47.2.201506.005

Joo, H., Park, J., Kin, S., Kim, H., Byun, H., Lim, Y., . . . Bae, J. (2021). *Exploring ways to improve the curriculum of elementary and middle schools: Korean, morals, social studies, mathematics*. English, Jincheon: Korea Curriculum Evaluation Institute.

Kang, D. (2015). Changes and modalities of Korean social studies curriculum: From syllabus period to 2009 revised national curriculum. *Social Studies Education, 54*(1), 63-89.

Kang, D., & Mo, K. (2013). Characteristics of Korean social studies curriculum revisions: Focused on 2007, 2009 revised national curriculum. *Educational Research and Practice, 79*, 1-23.

Kang, D., Mo, K., & Cha, J. (2011). Characteristics and future tasks of the 2009 national social studies curriculum: Focused on the debate over class hours and requirements. *Theory and Research in Citizenship Education, 43*(3), 29-54. https://doi.org/10.35557/trce.43.3.201109.002

Kim, E. (2015). A study on disjunction between ideal and reality of social studies with the revision of the integrated curriculum of liberal arts and natural sciences: Focused on the conflict of integrated social studies curriculum. *Social studies Education and Research, 22*(4), 63-78.

Kim, G. (2016). An analysis of global citizenship discourses in the geography curriculum. *Social Studies Education, 55*(4), 1-16.

---

[9] In middle school, 92.4% of teachers majoring in geography, 78.2% of teachers majoring in social sciences, and 77.0% of teachers majoring in history agreed (Joo et al., 2021) At a public hearing to revise the social studies curriculum, 334 comments were posted on the separation of social sciences and geography and the division of textbooks in middle school social studies. Of these, 97.4% agreed on this issue.

[10] The curriculum table of the high school social studies is as follows (Ministry of Education, 2021d).

[11] For example, practical arts in elementary school comprise technology and family at the middle school level. These subjects are separated in high school and thus, the demand for separate independence in middle school is more severe than in middle school social studies. If the Ministry of Education meets the demands of middle school social studies, it must also accept the demand for the separation of technology and family. However, it may not be easy to accept the demands due to problems such as the supply and demand of teachers.

Kim, J. (2020). *An analysis of the features of academic discourse on national social studies curriculum by time period using text mining*. Unpublished PhD Thesis at Seoul National University.

Kim, S. (2012). The acceptance and refraction of the discourse about 'reduction of educational content'in the history national curriculum and textbooks. *The Korean History Education Review, 121*, 1-42.

Kim, S. (2021). *Analysis of the contents of Korean geography textbooks using text mining and semantic network analysis: Focusing on the "The location of the country and territorial issues" unit*. Unpublished Master's Thesis at Korea University.

Lee, D.-M. (2017a). A semantic network analysis of the current trends in global geography education research. *Journal of the Association of Korean Geographers, 6*(3), 355-368. https://doi.org/10.25202/jakg.6.3.4

Lee, D. (2017b). A semantic network analysis of research trends in primary geography major M.A. and Ph.D. dissertations in South Korea. *Social Studies Education, 56*(4), 75-90. https://doi.org/10.37561/sse.2017.12.56.4.75

Lee, D., & Ko, A. (2015). The structural characteristics of global citizenship education in the secondary geography curriculum of the republic of Korea: Content analysis focusing on the 2009 revised middle and high school curriculum. *Social Studies Education, 54*(3), 1-19.

Lee, J., & Butt, G. (2014). The reform of national geography standards in South Korea—trends, challenges and responses. *International Research in Geographical and Environmental Education, 23*(1), 13-24. https://doi.org/10.1080/10382046.2013.858404

Lee, S. (2014). A content analysis of journal articles using the language network analysis methods. *Journal of Korean Society for Information Society, 31*(4), 49-68. https://doi.org/10.3743/kosim.2014.31.4.049

Lee, S. (2018). *The use and limitations of network analysis methods*. Seoul: Cheongram.

Ministry of Education. (2000). Standards for social studies and history curriculum in elementary, middle, and high schools. In (pp. 1946-1997). Seoul: Author.

Ministry of Education. (2021a). *Data collection of the first joint workshop of policy researchers on the 2021 curriculum*. Seoul: Author.

Ministry of Education. (2021b). *Comprehensive promotion plan for high school credit system (February 16, 2021)*. Seoul: Author.

Ministry of Education. (2021c). *Future curriculum promotion plan with the people (draft) (April 2, 2021)*. Seoul: Author.

Ministry of Education. (2021d). *Education for a better future, for all: Key matters of the 2022 revised curriculum (November 24, 2021)*. Seoul: Author.

Ministry of Education. (2021e). *Future teachers who understand the school and prepare for change, announced the development plan for the elementary and secondary teacher training system*. Sejong: Author.

Nahm, U. Y., & Mooney, R. J. (2002). *Text mining with information extraction*. Paper presented at the Proceedings of the AAAI 2002 Spring Symposium on Mining Answers from Texts and Knowledge Bases Stanford, CA.

Park, B., Mo, K., Park, H., Kim, M., Kang, S., Yi, K., . . . E., K. (2021). *Research on how to organize a future-oriented social studies group curriculum in preparation for post-COVID-19*. Seoul: Ministry of Education.

Park, E., & Jeon, S. (2004). By using social network analysis: A study on the integrated-content organization in the middle school social studies textbook. *Theory and Research in Citizenship Education, 36*(1), 101-121.

Park, S. (2016). A critical review on the decision making structure of the 2015 revised national middle school social studies curriculum development. *The Journal of The Korean Association of Geographic and Environmental Education, 24*(1), 33-45. https://doi.org/10.17279/jkagee.2016.24.1.33

Park, S., & Chang, I. (2018). A comparative study on the concepts of multicultural education in moral subjects and social studies by analyzing semantic networks. *The Journal of Elementary Education, 31*(1), 47-72. https://doi.org/10.29096/jee.31.1.03

Russo, T. C., & Koesten, J. (2005). Prestige, centrality, and learning: A social network analysis of an online class. *Communication Education, 54*(3), 254-261. https://doi.org/10.1080/03634520500356394

Silge, J., & Robinson, D. (2017). *Text mining with R: Tidy approach*. Sebastopol, CA: O'Reilly.