Analysis of the Appropriateness of Elementary and Middle School Subject Contents in 2015 Revised National Curriculum

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V. Analysis of the Appropriateness of Elementary and Middle School Subject Contents in 2015 Revised National Curriculum

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1. Research Background

◈ The need to analyze the application and status of the current curriculum with the approaching revision of the National Curriculum

○ According to the Ministry of the Education’s Plan for the Development and Application of the National Curriculum (Ministry of Education, 2018), the general guidelines for the National Curriculum will be finalized and the development of the curriculum will start in 2021, which will be shared to the public in 2022 and take effect in 2025.

○ The year 2020 is the period in which the 2015 Revised National Curriculum is applied in the school setting, from the 1st grade of elementary school to the 3rd grade of high school. As such, it is a time suitable for the review of the National Curriculum’s application in the school setting.

○ To derive the implications for the development of the next National Curriculum, identifying the potential improvements through the analysis of the surveys made in the field is necessary.

◈ Demand for research in the appropriateness of subject contents in the National Curriculum

○ Revisions to the National Curriculum were always accompanied by the issue of appropriateness in subject contents (Kim et al., 2018; Lee et al., 2014; Lee et al., 2004).

○ The 2015 Revised National Curriculum sought to establish appropriateness in the selection, organization, amount, and level of education contents through guidelines pertaining to the organization of subject education (Lee et al., 2014).

○ A comprehensive analysis of appropriateness in subject content at a national level was only conducted in the 7th National Curriculum, and never since then. To that end, undertaking a national-level study on the appropriateness of the subject areas in the 2015 Revised National Curriculum is necessary.
2. Research Goals

✧ Appropriateness analysis of the curriculum contents of elementary and middle schools according to the 2015 Revised National Curriculum

○ This study seeks to reestablish the concept of appropriateness by considering the directions of National Curriculum revision and the characteristics of the subject, establish the basis of analysis thereof, and thus undertake an analysis of the curriculum contents of elementary and middle school levels in the 2015 Revised National Curriculum.

○ The results of the analysis in eight subjects (Korean Language, Social Studies, Mathematics, Science, Physical Education, Music, Art, and English) at the elementary and middle school levels are then used to present the potential methods of improving the National Curriculum for greater appropriateness.

○ This study focuses on elementary and middle school levels, which are basic and common levels of education under the universal education system, in its analysis of appropriateness1).

3. Methodology

✧ Literature review

○ Goal: Conceptualization of curriculum content appropriateness and establishment of analytic basis, analysis of background and changes in the 2015 Revised National Curriculum by subject, preceding research review on appropriateness analysis regarding curriculum content in the 2015 Revised National Curriculum, preceding research review on subject competencies,

1) The high school level educational content features significant variations in level and scope, making it difficult to generate objective results for appropriateness analysis using common standards. Furthermore, there is also the possibility of the results being less reliable and useful in comparison to the elementary and middle school levels. Moreover, the wide range of basic common subjects and electives in the high school curriculum makes it highly difficult to provide appropriateness studies for each subject in terms of practical feasibility. As such, this study limited the subject of analysis to elementary and middle school levels.
and linkage of educational content

○ Content
  - Review of domestic and overseas preceding researches on educational content appropriateness
  - Review of preceding researches on subject-specific educational content appropriateness in the 2015 Revised National Curriculum
  - Documentary analysis of the 2015 Revised National Curriculum general guidelines and curriculum documents
  - Textbook analysis for books used in the 2015 Revised National Curriculum
○ Period: January–August

◆ Delphi survey

○ Goal: Setting the direction and the basis of the educational content appropriateness analysis

○ Content
  - Conceptualization of the educational content appropriateness
  - Establishment of the educational content appropriateness analysis direction and basis
  - Inclusion of subject characteristics in the analytical basis for educational content appropriateness
○ Target: About 60 respondents, including curriculum and subject instruction experts and elementary school and middle school teachers
○ Period: March–April

◆ Working group

○ Goal: Educational content appropriateness analysis and review of the 2015 Revised National Curriculum in elementary and middle school levels

○ Content
・ Educational content appropriateness analysis in curriculum documentation
・ Educational content appropriateness analysis in subject textbooks
・ Teacher awareness survey on the appropriateness of educational content

○ Target: A total of 53 experts consisting of 6–8 experts (2 professors, 2 elementary school teachers, 2–4 middle school teachers) by subject (8; Korean Language, Social Studies, Mathematics, Science, Physical Education, Music, Art, English)

○ Period: April–October

(Table I-1) Overview of working group operations

<table>
<thead>
<tr>
<th>Period</th>
<th>Classification</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>APR.–OCT.</td>
<td>Educational content appropriateness analysis in curriculum documentation</td>
<td>- Analysis of documents in each subject outlined under the 2015 Revised National Curriculum based on the standards of subject educational content appropriateness analysis</td>
</tr>
<tr>
<td>JUN.–SEP.</td>
<td>Educational content appropriateness analysis in subject textbooks</td>
<td>- Elementary and middle school educational content appropriateness analysis based on the standards of subject educational content appropriateness analysis</td>
</tr>
</tbody>
</table>
| JUL.–OCT. | Teacher awareness survey on the appropriateness of educational content | - Discussions on the construction of the teacher survey questionnaire in relation to educational content appropriateness
- Review of teacher educational content appropriateness survey results

◈ Survey

○ Goal: Survey of teacher awareness and improvements regarding educational content appropriateness in elementary and middle school subjects under the 2015 Revised National Curriculum

○ Content

- Teacher awareness survey on the appropriateness of educational content by subject area in the elementary and middle school levels
- Improvement in the appropriateness of educational content by subject area in elementary and middle school level

○ Target: Elementary and middle school teachers across Korea
About 5% of the total schools in Korea were sampled, with consideration of the region’s sizes included. Subject teachers were in eight target subjects (Korean Language, Social Studies, Mathematics, Science, Physical Education, Music, Art, English).

○ Period: July 20–30, 2020

○ Sample distribution

- Teachers from a total of 389 schools across Korea (199 elementary, 190 middle schools) took part in the survey.
- Demographical information, including school location, gender, and work experience, are provided in the following <Table I-2>.

**<Table I-2> School characteristics in survey response**

<table>
<thead>
<tr>
<th>School Location</th>
<th>Frequency</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Elementary</td>
<td>Middle</td>
</tr>
<tr>
<td>Metropolitan Cities</td>
<td>91</td>
<td>80</td>
</tr>
<tr>
<td>Mid-Sized and Small Cities</td>
<td>69</td>
<td>65</td>
</tr>
<tr>
<td>Rural Areas</td>
<td>39</td>
<td>45</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Elementary</td>
<td>Middle</td>
</tr>
<tr>
<td>Male</td>
<td>34</td>
<td>40</td>
</tr>
<tr>
<td>Female</td>
<td>165</td>
<td>150</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Working Experience</th>
<th>Frequency</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Elementary</td>
<td>Middle</td>
</tr>
<tr>
<td>Under 5 years</td>
<td>14</td>
<td>21</td>
</tr>
<tr>
<td>5 years to under 10 years</td>
<td>30</td>
<td>21</td>
</tr>
<tr>
<td>10 years to under 20 years</td>
<td>87</td>
<td>64</td>
</tr>
<tr>
<td>20 years and above</td>
<td>68</td>
<td>84</td>
</tr>
</tbody>
</table>

|                   | Total 199 | Total 190 | 100.0 | 100.0 |

○ Respondents by school level and subject

- A total of 2,721 teachers (1,353 at the elementary level, 1,368 at the middle school level) took part in this survey. Their distribution is as follows, in <Table I-3>.
〈Table I-3〉 Respondents by school level and subject

(Unit: Teacher (%))

<table>
<thead>
<tr>
<th>School Location</th>
<th>Korean Language</th>
<th>Social Studies</th>
<th>Mathematics</th>
<th>Science</th>
<th>Physical Education</th>
<th>Music</th>
<th>Art</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Elementary</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metropolitan Cities</td>
<td>91 (45.7)</td>
<td>78 (45.3)</td>
<td>74 (43.0)</td>
<td>71 (42.3)</td>
<td>69 (45.4)</td>
<td>66</td>
<td>75</td>
<td>75 (43.9)</td>
</tr>
<tr>
<td>Mid-Sized and Small Cities</td>
<td>69 (34.7)</td>
<td>57 (33.1)</td>
<td>59 (34.3)</td>
<td>58 (34.5)</td>
<td>52 (34.2)</td>
<td>56</td>
<td>49</td>
<td>64 (37.4)</td>
</tr>
<tr>
<td>Rural Areas</td>
<td>39 (19.6)</td>
<td>37 (21.5)</td>
<td>39 (22.7)</td>
<td>39 (23.2)</td>
<td>31 (20.4)</td>
<td>38</td>
<td>35</td>
<td>32 (23.7)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>199 (100.0)</td>
<td>172 (100.0)</td>
<td>172 (100.0)</td>
<td>168 (100.0)</td>
<td>152 (100.0)</td>
<td>160</td>
<td>159</td>
<td>171 (100.0)</td>
</tr>
<tr>
<td><strong>Middle School</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metropolitan Cities</td>
<td>80 (42.1)</td>
<td>67 (40.9)</td>
<td>74 (38.5)</td>
<td>67 (39.0)</td>
<td>69 (41.1)</td>
<td>61</td>
<td>73</td>
<td>74 (40.4)</td>
</tr>
<tr>
<td>Mid-Sized and Small Cities</td>
<td>65 (34.2)</td>
<td>64 (39.0)</td>
<td>79 (41.1)</td>
<td>70 (40.7)</td>
<td>60 (35.7)</td>
<td>54</td>
<td>55</td>
<td>66 (36.1)</td>
</tr>
<tr>
<td>Rural Areas</td>
<td>45 (23.7)</td>
<td>33 (20.1)</td>
<td>39 (20.3)</td>
<td>35 (20.3)</td>
<td>39 (23.2)</td>
<td>31</td>
<td>25</td>
<td>43 (23.5)</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>190 (100.0)</td>
<td>164 (100.0)</td>
<td>192 (100.0)</td>
<td>172 (100.0)</td>
<td>168 (100.0)</td>
<td>146</td>
<td>153</td>
<td>183 (100.0)</td>
</tr>
</tbody>
</table>

*S e m i n a r*

- Goal: Sharing the results of the 2015 Revised National Curriculum subject educational content appropriateness analysis and gathering feedback on potential methods of improvement
- Content
  - Share the results of educational content appropriateness analysis by subject
  - Discuss potential methods of improvement to the curriculum to ensure the appropriateness of the subject curriculum
- Target: Curriculum and subject experts, elementary and middle school teachers, Ministry of Education officials, etc.
- Period: September 29, 2020
Expert conference

- Goal: Discussions on the conceptualization of educational content appropriateness, review of educational content appropriateness analysis results, discussions on the result of teacher awareness survey on educational content appropriateness, discussions on the potential methods of improvement in the next revision to the National Curriculum

- Content
  - Collection of feedback toward the conceptualization and analytic basis setting on educational content appropriateness
  - Collection of feedback on teacher awareness survey results regarding educational content appropriateness
  - Collection of feedback on methods of improving the subject curriculum for the goal of enhancing subject content appropriateness
  - Collection of feedback on methods of enhancing general educational content appropriateness

- Target: Curriculum and subject experts, elementary and middle school teachers, Ministry of Education officials, etc.

- Period: March–October

4. Results

Conceptualization and analytical base setting for educational content appropriateness

- Definition of educational content
  - There are items that are taught by the teacher and learned by students, including knowledge, values, attitudes, and function. They must be provided in pedagogical forms that students can experience.
  - These items should be provided as essential items of learning in the achievement of the educational goals and are to be realized as actual learning and instructive practices.
○ Definition of educational content appropriateness

  - This concept examines whether educational content is presented adequately in the curriculum. It refers to the act of providing educational content by selecting optimal educational contents based on the objectives of education and demands of the government, society, academia (subject), and student; organizing the educational contents into an effective system through connection, hierarchy, and flow; and presenting the educational content to students in a suitable amount and level considering the students’ developmental levels, education period, and education conditions.

○ Establishing analytical standards for educational content appropriateness analysis

<table>
<thead>
<tr>
<th>Area</th>
<th>Perspective</th>
<th>Area</th>
<th>Perspective</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Selection of Educational Content</td>
<td>1-1-1. National and Social Demand</td>
<td>1-1-1. Does the educational content reflect the demands and changes in national and social levels?</td>
<td>1-1-1. Does the educational content reflect the demands and changes in national and social levels?</td>
</tr>
<tr>
<td></td>
<td>1-2-1. Subject and Academic Demand</td>
<td>1-2-1. Does the educational content reflect academic systems and trends?</td>
<td>1-2-1. Does the educational content reflect academic systems and trends?</td>
</tr>
<tr>
<td></td>
<td>1-3-1. Student Demand</td>
<td>1-2-2. Is the educational content necessary and central to the subject?</td>
<td>1-2-2. Is the educational content necessary and central to the subject?</td>
</tr>
<tr>
<td></td>
<td>1-3-2. Student Demand</td>
<td>1-2-3. Does the educational content reflect the goals of the subject?</td>
<td>1-2-3. Does the educational content reflect the goals of the subject?</td>
</tr>
<tr>
<td></td>
<td>2. Organization of Educational Content</td>
<td>1-2-4. Does the educational content reflect the subject competencies?</td>
<td>1-2-4. Does the educational content reflect the subject competencies?</td>
</tr>
<tr>
<td></td>
<td>2-1-1. Intra-subject Organization</td>
<td>1-3-1. Does the educational content reflect the interests and demands of the students?</td>
<td>1-3-1. Does the educational content reflect the interests and demands of the students?</td>
</tr>
<tr>
<td></td>
<td>2-1-2. Intra-subject Organization</td>
<td>1-3-2. Is the educational content related to the student experience and real life?</td>
<td>1-3-2. Is the educational content related to the student experience and real life?</td>
</tr>
<tr>
<td></td>
<td>2-2-1. Inter-subject Organization</td>
<td>2-1-1. Does the formation of educational content consider the hierarchy and the linkage between school levels, grade (groups), and district levels?</td>
<td>2-1-1. Does the formation of educational content consider the hierarchy and the linkage between school levels, grade (groups), and district levels?</td>
</tr>
<tr>
<td></td>
<td>2-2-2. Inter-subject Organization</td>
<td>2-1-2. Does the formation of educational content consider the hierarchy and the linkage within or between subject areas?</td>
<td>2-1-2. Does the formation of educational content consider the hierarchy and the linkage within or between subject areas?</td>
</tr>
<tr>
<td></td>
<td>2-2-3. Inter-subject Organization</td>
<td>2-1-3. Is the ratio of the educational contents between the subjects optimal for the characteristics of the subject?</td>
<td>2-1-3. Is the ratio of the educational contents between the subjects optimal for the characteristics of the subject?</td>
</tr>
<tr>
<td></td>
<td>2-2-4. Inter-subject Organization</td>
<td>2-2-1. Are educational contents organized in a way that speaks to the linkage or the hierarchy between the subjects?</td>
<td>2-2-1. Are educational contents organized in a way that speaks to the linkage or the hierarchy between the subjects?</td>
</tr>
</tbody>
</table>
### Results of the 2015 Revised National Curriculum’s educational content appropriateness analysis

- Regarding the selection of educational content, it is found that the curriculum educational content well reflected national and social demands as well as changes, academic systems, and trends.
- It is suggested that some curriculum needs improvement in terms of subject competencies and whether student needs are reflected.
○ Regarding the organization of the educational content, it is found to be generally appropriate in the content organization within the subject.

- The proportion of educational content between the school level and grade (group), the linkage and hierarchy within the subject area, and the content area between the subject areas are properly structured.

- Regarding linkage between subjects, analysis is not conducted for some subjects where the linkage between subjects is not an essential development direction when the curriculum is revised.

○ Regarding the amount of educational content, it can be seen that the curriculum educational content is generally composed of the curriculum goal, the student’s level of development, the number of hours of instruction, and the amount suitable for the students to achieve in relation to the teaching and learning environment.

- It is suggested that the level of student development, the number of hours of instruction, and the amount of learning compared to the teaching and learning environment need to be adjusted in some subjects.

- The adequacy of the amount of educational content is slightly different for each school level in some subjects.

○ Regarding the level of educational content, it is found that the curriculum educational content is at a level suitable for students to achieve when considering the curriculum goal, the student’s development level, the number of hours of instruction, and the teaching and learning environment.

- It is found that the level of appropriateness is necessary for the educational content of some subjects.
5. Policy Suggestions

Suggestion for improving the appropriateness of the curriculum for the next revision of the curriculum

Definition of Educational Content Appropriateness

It refers to the act of providing educational content by selecting optimal educational contents based on the goals of education and demands of the government, society, academia (subject), and student; organizing the educational contents into an effective system through connection, hierarchy, and flow; and presenting the educational content to students in a suitable amount and level considering the students' developmental levels, education period, and education conditions.

Analytical Standards

1. Selection of Educational Content
   - National and Social Demand
   - Subject and Academic Demand
   - Student Demand

2. Organization of Educational Content
   - Intra-subject Organization
   - Inter-subject Organization

3. Amount of Educational Content
   - Achieving Subject Goals
   - Student Developmental Level
   - The Number of Hours of Instruction
   - Teaching and Learning Environment

4. Level of Educational Content
   - Achieving Subject Goals
   - Student Developmental Level
   - The Number of Hours of Instruction
   - Teaching and Learning Environment

Educational Content Appropriateness Analysis for the 2015 Revised National Curriculum

Korean Language, Social Studies, Mathematics, Science, Physical Education, Music, Art, English

Follow-up research project on the appropriateness of the curriculum content

- Basic research to identify students needs and level of development
- Basic research to adjust the amount and level of educational content
- Basic research to improve curriculum problems by subject is necessary

Improvement of the curriculum appropriateness for each subject

- Improvement of national and social demands and changes in the selection of educational content, or the content of reflecting the academic system and trends
- Development of achievement standards linked to subject competencies
- Improvement of the composition of the educational content system in consideration of subject characteristics and competencies
- Optimization of the amount and level of education contents in consideration of the student's development level and the teaching and learning environment

Optimizing educational content for the next revision to the National Curriculum

- Selection of education content
- Organization of education content
- Amount of education content
- Level of education content

[Figure I-1] Suggestions to improve the appropriateness of subject education content
Future research tasks for the appropriateness of subject contents

- It is suggested that there is a need for basic research at the national level on student needs, interests, and development level, basic research to adjust the amount and level of educational content, and basic research to improve curriculum problems by subject.

Improvements for subject curriculum

- It is suggested that improvement of national and social demands and changes in the selection of educational content, or the content of reflecting the academic system and trends, development of achievement standards linked to subject competencies, improvement of the composition of the educational content system in consideration of subject characteristics and competencies, and optimization of the amount and level of education contents in consideration of the student’s development level and the teaching and learning environment should be provided.

Optimization of subject education content

- The selection and organization of educational content and detailed plans in terms of the amount and level of educational content are presented as a plan for the appropriate curriculum educational content that can be applied in the next curriculum revision.
References


