Improvement Plan of the Subject Curricula based on the Key Competencies

- Focusing on the Alignment of Curriculum, Teaching and Learning Methods and Educational Assessment

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I. Necessity of the Study

◢ Need for exploring various ways that reflect key competencies in subject curricula for the future society

- This is a continuous study of the previous research titled as 'Design of the Competencies-based Curriculum for the Future Society' in 2012.
- This study focuses on exploring ways to reconstruct subject curricula based on 'the direction and framework for improving national curriculum' set in the first year research. The study is particularly conducted on Korean Languages, Social Studies, and Science subjects with the expectation of bringing about many changes and positive effects.

◢ Need for devising a plan that link curriculum, teaching and learning methods, and educational assessment to implement key competencies-based curriculum

- This study needs to develop practical methods and supporting plans in teaching and learning methods as well as in educational assessment field so that reconstructed subject curricula can be effectively implemented through school curricula, classes, and assessments.
- As a specialized institute for curriculum, teaching and learning methods, and educational assessment, there is a need to develop plans for the comprehensive improvement of primary and secondary education, which combines curriculum, teaching and learning methods, and educational assessment.

II. Purpose of the Study

◢ Examine the directions for improvements in the subject curricula and suggest directional changes for the development of key competencies in the subjects 'Korean Language', 'Social Studies', and 'Physical Education'.

◢ Lay a foundation for efficiently implementing the subject curricula aiming the development of key competencies through exploring proper instruction models and strategies.

◢ Prepare a comprehensive subject curriculum improvement plan that includes a consistent set of curriculum, teaching and learning methods, and educational assessment system after exploring directions for the development of key competencies.

◢ Check for the requirements for developing an effective subject curriculum improvement plan and facilitate public discourse though the proposal of policies.

III. Contents of the Study

◢ Focusing on Korean Language, Social Studies, and Physical Education, explore possible improvements for the subject curriculum adequate for developing key competencies.

◢ Explore application strategies and implementation methods for teaching and learning following the improvement of subject curriculum.

◢ Explore application strategies and implementation methods adequate for the development of key competencies.

◢ Identify and propose the requirements for the successful implementation of the key competencies based curriculum.

IV. Results of the Study

◢ Major findings in the Korean Language curriculum

• The following results were obtained from the analysis of national language education curricula in Australia, United Kingdom, New Zealand, Finland, Singapore, and Quebec (Canada)

- Language skills are emphasized as one of the key competencies for being successful in individual's life, school, occupation, and social life.

- Their curricula state that the development of language skills is a primary goal of national language education and that other subject education should make joint

efforts in the improvement of the skills.

- The key competencies of Korean Language are 'skills of using Korean language', 'ability to utilize digitalized information', 'critical and creative thinking', 'basic learning ability', 'language and cultural identity', 'community and civil awareness', and 'social communication and capacity of cooperation'.

- The analysis of the 2009 Revised Curriculum for Korean Language revealed that not only the 'objectives' and 'content' of the Korean Language education but also the 'teaching and learning method' and 'evaluation' have not been sufficiently incorporated competencies in the curriculum.

- The study proposes Korean Language curriculum improvement plans for 11 items in seven categories, such as linking the General Guidelines of National Curriculum and the subject curriculum; communication and distribution of the curriculum documents; connecting education contents with teaching and learning methods and assessment; connecting Korean Language education with the educational contents for key competencies development; and adding/supplementing educational contents for the development of key competencies.

◢ Major findings in the Social Studies curriculum

- The analysis of the curriculum for Social Studies in Australia, the United Kingdom, Quebec (Canada), France, Taiwan, and New Zealand showed the following results. These countries emphasized the perspective that tries to understand the contents of the course using the achievement standards, and they had an integrated system of the subject curriculum, teaching and learning methods, and assessment.

- The key competencies of Social Studies education are 'human relation skills' as personality competency; 'critical thoughts', 'problem-solving and decision making', 'information-processing capacity and communication skills' as intelligence competencies, and 'citizenship (local/national/global)' as social competency.

- After analyzing the 2009 Revised Curriculum for Social Studies from the point of key competencies, the following concerns were raised. First, the vague objectives, teaching and learning methods, and assessment it has and second, the lack of connection with the contents of education.

- The suggested improvement measures are the following. First, clearly explain key competencies in the objectives of Social Studies. Second, make the curriculum contents of Social Studies relevant and optimum for learning and systematize the construction principles in association with the key competencies. Third, specify key competencies in each chapter. Fourth, suggest learning activities and evaluation criteria for each chapter.

Major findings in the Physical Education curriculum

- The analysis of the curriculum for Physical Education in Hessen (Germany), New South Wales (Australia), and Quebec (Canada) showed the following results. They have selected the key competencies with a focus on cross-curricula common competencies. They also pursued comprehensive and integrated educational purposes through the objectives.
- Korea introduced the physical activity value concept in the 2007 Revised Curriculum and stipulated in its 2009 Revised Curriculum that the values of physical activity includes the future key competencies. Therefore, Physical Education subject defines the relationship between physical activity and the curriculum on the basis of the two pillars: 'value area' as a subject knowledge and 'key competencies' that are closely related to the value area.
- The key competencies of Physical Education are fitness, challenge, interpersonal skills, creativity, and citizenship.
- The analysis of the 2009 Revised Curriculum for Physical Education identified the following problems. 'The concept of key competencies needs to be clearly stated' and the content description of the objectives, contents, teaching and learning methods, and evaluation should be supplemented 'in ways that assist the development of key competencies'.
- The improvement measures are the following. First, redefine the concepts of key competencies that are relevant to the characteristics of Physical Education. Second, collect and distribute the best practices of the key competency development that are original to Physical Education. Third, introduce after-school physical activity programs for developing key competencies.

◢ Major findings in the application measures of teaching and learning

- Facilitate communication between teacher and students and among students based on the teaching materials that are less discontinuous.
- As an example, this research suggests teaching and learning methods focused on 'cooperation' and 'research'.
- It is also important to determine an appropriate difficulty of the content of cooperative research class in line with the class curriculum.
- The application strategies from the viewpoint of teachers are the following. First, analyze the feasibility of teacher-level reconstruction of curriculum and its scope. Second, determine the scope of cooperative inquiry learning based on the curriculum. Third, develop and use the supplementary material.

◢ Major findings in evaluation measures of the key competencies

- The survey on primary and secondary school teachers reports that the students' abilities related to the future key competencies are already counted toward their grades.
- There are many analytic tools of different types and methods developed to measure constructs, such as problem-solving, communication and cooperation, creativity, critical thinking, and self-directed learning, which are also generally part of future key competencies. However, because of the difficulties in changing the questionnaires related to the key competencies, their role as a support material is suggested.
- The improvement measures for the key competency assessment based on the curriculum are to simplify evaluation objectives and construct key competencies, specify the behaviors related to the key competencies, evaluate key competencies under the Achievement Standards-based Assessment (ASA), and use self/peer/teacher evaluation methods.

V. Policy Implications

▨ Improve the validity, democratic nature, and consistency of the subject curriculum amendment process

● Application strategy 1

Collect the proposal for curriculum revision from schools and teachers at the time of the revision.

- When the decision to revise curriculum becomes final, a sufficient time is needed to be given to collect the proposal for curriculum revision from the schools and each region so that schools and teachers can submit their requests and needs.
- This will improve the transparency and the democratic nature of the curriculum revision process and the awareness and understanding among teachers and curriculum experts on the issues related to the development of key competencies.

● Application strategy 2

Construct a comprehensive development road map so that the development of curriculum, achievement standards and level, and textbook will not be partial or extemporaneous.

- The improvement of subject curriculum that can assist developing key competencies requires a development system that allows the formulation of organic and systematic subject curricula.
- It is important to maintain a development direction under the consistent and systematic road map and provide only necessary information in the most efficient way on a single, comprehensive document rather than allowing subject curricula, achievement standards and level, key achievement standards, and textbooks to be developed by different agents at different times and sometimes partially (extemporaneously with ad hoc revisions) on different documents.

● Application strategy 3

Support the development of curriculum, which links the contents, methods, and educational assessment.

- The former curriculum defined 'contents', 'methods', and 'assessment' separately and failed to provide detailed information for the development of textbooks, classroom management, and the designing of assessment tools. To resolve this issue, a (integrated) documentation system of the curriculum that presents contents linked with proper methods, and assessment at the same time is advisable.
- Still, it is important to remember that by saying 'integrated', we are not merely suggesting the change of document format. There should be a paralleled improvement of the awareness and understanding of the contents of education (the minimum requirement as product of a long-term careful discourse among many participants), methods (simple but sophisticated methods that are suitable for teaching the minimum required contents over the long term), evaluation(application of evaluation tools that can properly measure the proficiency as the result of minimum education requirement)

◢ Reinforcement of the teacher professionalism and autonomy

- To promote the reconstruction of the curriculum for the development of key competencies and the practical application of teaching and learning methods, and assessment, the teacher professionalism and autonomy should be supported.
- To create a favorable environment, a series of measures that removes obstructing regulation or guidelines will be necessary.
- Above all, in-school assessment and out-of-school assessment (National Assessment of Educational Achievement, College Scholastic Ability Test) need to move away from simply measuring knowledge and toward evaluating key competencies. (ex.: Baccalaureate test in France)

◢ Develop teaching and learning methods, and education assessment materials and prepare multifaceted support plans

- It is important to develop and distribute detailed teaching and learning, and assessment materials that can assist with the development of key competencies under the current education environment. Since emphasizing the objectives and the need of developing key competencies of the students alone have limits in bringing about

changes, providing practical cases about the direction of teaching and evaluation in relation to the subject content will be necessary.

- To steer away from the knowledge-centered education and to realize the curriculum that fosters key competencies, teachers should thoroughly understand the details and the issues of the curriculum. To this end, some options, such as distributing booklets, electronic copies of the curriculum to the teachers, or providing online documents can be considered. For example, it will be helpful to teachers if they can simply click on the achievement standards tab and gain access to various examples of teaching and learning materials, lesson plan examples, assessment tools, assessment standards, and student performance criteria.

- In the long-run, a ministry-level curriculum Web site and a credible portal that can develop and distribute various examples of curriculum related teaching and learning, and assessment need to be developed. It is also necessary to provide support so that not only the curriculum documents but also various support materials (teaching and learning methods, assessment, etc.) and information (overview of curriculum, major issues, and key competencies) to improve teachers' understanding and awareness toward the new direction of education and curriculum, and better utilized them at the school level in intended ways.

◢ Improvement of teachers' competency in curriculum reconstruction and class management

- **Application strategy 1**

  Recommend and advise the formulation of teaching and learning plans that encompass the direction of curriculum reconstruction, teaching and learning strategies, and assessment methods.

- The teaching and learning methods for the development of key competencies require systematic approach to designing and application in classes and flexible and elastic approaches to the management of the class. For this, the teaching and learning plans should include ways of reconstructing curriculum and detailed management measures.

- The teaching and learning plans should also include examples of curriculum re-

construction that teachers can actually use, and related research topics and cooperative learning measures. The class assessment should describe the achievement standards for the students and elements related to key competencies which students can acquire through inter-subject or research and cooperative learning.
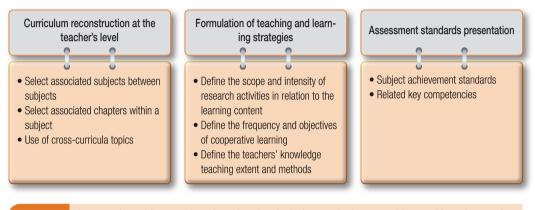
Curriculum reconstruction at the teacher's level	Formulation of teaching and learning strategies	Assessment standards presentation
• Select associated subjects between subjects • Select associated chapters within a subject • Use of cross-curricula topics	• Define the scope and intensity of research activities in relation to the learning content • Define the frequency and objectives of cooperative learning • Define the teachers' knowledge teaching extent and methods	• Subject achievement standards • Related key competencies

Figure 1 Issues of teaching and learning plan that includes curriculum, teaching and learning methods, and assessment

Application strategy 2

Promote teacher community among related subjects

- Active teacher community among related subjects can promote the openness of curriculum between subjects and the participating teachers can also efficiently associate teaching content with the class management.

◼ Construct a learning and teaching support system for the development of key competencies

Application strategy 1

In a short-term strategy, distribute best practices and case examples. In a mid to long-term strategies, a focus should be on the spread of teaching and learning methods led by teachers themselves through a user-participation system.

- There should be a continued effort in discovering exemplary (excellent) practices or cases that are adequate for the development of key competencies. Best prac-

tice and example collection measures such as promoting group research projects by choosing key competency related topics as the theme of research contests or using teacher research system may be considered to support the teachers to study related research topics.

- The distribution of teaching examples would be phased in. First, a related research institution can take a lead role in finding best practices. Then, after the Ministry of Education and the Metropolitan Office of Education can introduce those cases to the teachers during their training. This effort can be pivotal in the early stage of the spread of teaching model that is centered on the development of key competencies. The next stage needs to be more user-centered in discovering and disseminating best practices after the first stage is well established. Some other countries have set up Web sites and blogs, such as 'Partnership for 21st Century Skills', to exchange ideas and opinions. New Zealand also has an official Web site and linked blogs to share video clips and other opinions from schools.

● **Application strategy 2**

The focus of teachers training should be on improving the expertise of teachers as teacher-researchers and education practitioners.

- The class aimed at developing key competencies that should reflect structured planning and unstructured phenomenon. The first requires the teachers' professionalism in curriculum and the latter emphasizes the role of teachers as a supporter. While traditional teachers' professionalism focused on organizing curriculum and carrying out preplanned teaching and learning program, the teachers' professionalism in key competencies focused on class is in coordinating the structure of the curriculum and unstructured educational phenomenon. Because such professionalism cannot be acquired through a short-term training of teaching and learning methods, the teachers' training should be directed toward increasing their professionalism as teacher-researchers and education practitioners.

- To this end, this study suggests the promotion of teachers' research contest. Classes aimed at developing key competencies should not follow a top-down approach but rather a combination of choices and practices. The research contest on teaching methods can be appropriate for the spread of the classes focused on the

development of key competencies because it does not only provide an opportunity for the teachers to introspect and learn lessons from their own classes but also gives them a chance to introduce their research results to upper agencies.

Search for multifaceted future key competencies assessment measures

Application strategy 1

Clear assessment objectives

- Because the objectives of assessment are a determining factor behind the selection of assessment tasks, development of tools, and deciding practice methods, the schools' assessment objectives need to be modified so that they can move toward supporting students' achievement and developing key competencies of the students and away from simply ordering students by their grades.

Application strategy 2

Clarification of key competencies constructs

- To support school teachers to find their own ways to evaluate students' key competencies, the constructs of the key competencies need to be clearly defined.
- Some possible approaches to clarify the constructs of the key competencies can be defining them in a way that can encompass the meaning of the key competencies in each subject or defining them first through the literature review and revise them so that they can fit to the context of the subjects.

Application strategy 3

Specify the behaviors related to the key competencies.

- Each subject can possibly emphasize a specific aspect of the key competencies construct. However, it should stay within the boundary that defines the key competencies. To ensure this, it is necessary to clearly state the meaning of cross-curricula key competencies, restate it within the context of the subject, and emphasize certain competencies related to the subject.
- When cross-curricula key competencies are clearly defined and the behavioral characteristics that are related to the key competencies are provided, the subject

teachers can consult to these when they design teaching and learning that focus on the development of key competencies or develop assignments or question-naires that evaluate key competencies.

- Because it is impractical to define the constructs of key competencies at the school level. Also because this can create variations across schools, some efforts to conduct training related to the construct of key competencies and provide support materials for teaching and learning methods as well as for assessment are required.

● **Application strategy 4**

The expansion and stable implementation of Achievement Standards-based As-sessment(ASA)

- The development of ASA started as a countermeasure to the problems of initial assessment measures that they caused stress over the academic standings, stoked exclusive competition among the students, lacked cooperative and considerate learning experience through cooperative learning, and had limitations in selecting and operating various curricula that are tailored to the student's aptitude, talent, and their career goals.
- To operate student-focused curricula that cover different levels and each indi-vidual student, and to reinforce the school's responsibility by providing more accurate information about the student's knowledge level, the competition-based comparative assessment measures need to be redressed. Therefore, the behaviors that are related to the key competencies should be included in the achievement standards and various assessment methods to evaluate the accomplishment of those standards need to be examined.

● **Application strategy 5**

Providing assessment opportunities and diversification of assesment methods.

- Because there are many constructs of the key competencies that cannot be accu-rately measured through a standardized test, it is essential to allow multiple op-portunities. Also, because some construct elements have various aspects, measur-ing them using a single task is ineffective. Thus, observing students from different

angles and different contexts will be necessary.

<div style="border:1px solid #ccc; display:inline-block; padding:4px;">● **Application strategy 6**</div>

└ Constructing a DB of questions and assessment tools.

- For teaching and learning based on the curriculum, assessment tools are often used to strengthen future key competencies. However, it is impractical for individual school teachers to develop every assessment tools in a situation where they have to manage teaching and learning, and assessment. Accordingly, the development and the distribution of the assessment tools and tasks by the central agency when the development of certain tests is over the unit school's capacity may be considered. It is important to create a system where school teachers can develop and share tasks and assessment tools that can be used for the assessment aimed at improving the teaching and learning.

◢ Identification and suggestions for follow-up studies

- The follow-up studies on the subjects other than Korean Language, Social Studies, and Physical Education that were covered in this study will be necessary.
- Based on the actual application of teaching and learning practical strategies suggested from this study and the outcome, further studies to explore the practical strategies for more sophisticated and expanded teaching and learning will be required.
- A development of assessment method manual to introduce various alternative assessment methods and assist with their actual application will be important.
- Follow-up studies to define constructs for each key competency for their accurate measurement and assessment and the studies for the development of assessment tools will be required.

VI. Expected Benefits

◪ This can provide a basic materials for future curriculum revision.

- By improving the subject curriculum based on key competencies, laying a foundation for the government envisioned "Happy Education", a tailored education that maximizes students' talents and goals may be possible.
- By making school education that is more meaningful and diversified and redressing rigidity and invariability of previous teaching and learning, and education assessment, this can contribute to "creative economy" by expanding the pool of creative human resources.
- Prepare practical application measures for the national curriculum system that addresses the changes in future societal and educational environment, and present a comprehensive school education improvement measures that combines teaching and learning, and education assessment.