Elementary Mathematics Education in Korea

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Books

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Summary

Mathematics, as a language that explains the laws of nature and science, uses universal mathematical expressions. However, there are differences in teaching methods and textbooks in mathematics across countries and cultures. So it would be of great help for mutual understanding to survey different curricula, textbooks, and teaching methods of other countries.

Very recently in Korea, national curricula for mathematics and English have been proposed. In this presentation, I will first introduce the characteristics and content of the new mathematics curriculum, and then I will talk about mathematics textbooks in Korea and teaching content for understanding the culture of other countries.

1. Main content of the amendment of mathematics curriculum in Korea

The new mathematics curriculum focuses on (1) designing level-based teaching, (2) making learning content appropriate, (3) improving mathematical thinking ability, (4) enhancing mathematical values, and (5) emphasizing affective factors. The main content of the amendment of mathematics curriculum is as follows.

First, the difficulty level of mathematics has been lowered and the amount of learning reduced by deleting the upper level, which was felt to be too difficult. In particular, the 60 items of the upper level in elementary mathematics has been deleted, and this is expected to have profound effects.

Second, various learning contents have been incorporated to reinforce the relationship among the content. Through this incorporation, the amount of learning has been reduced and the difficulty level has been lowered.
Third, some learning content is to be introduced at about the same time as it was introduced in the 6th national curriculum, taking into consideration the curricula in other subjects. In this process, too, efforts have been made to reduce the content and to lower the difficulty level.

Fourth, by deleting learning content that is not considered to be absolutely necessary, the amount of learning has been reduced and the study of basic concepts has been emphasized. This is expected to contribute to lowering the difficulty level since most of the deleted material consists of various applications of basic concepts rather than the concepts themselves.

2. Goals of mathematics education in Korea

The goals of mathematics education in Korea are (1) to acquire mathematical knowledge and skills, (2) to improve mathematical thinking and communication ability, (3) to improve the ability to consider phenomena and solve problems mathematically, and (4) to have positive attitude toward mathematics.

1) Elementary school

a) To improve the ability to understand basic concepts, principles, and rules in mathematics by observing various phenomena in everyday life mathematically
b) To improve the ability to solve problems in everyday life rationally by way of mathematical thinking and communication
c) To have interest in mathematics, to understand the value of mathematics, and to have a positive attitude toward mathematics

2) Middle school

a) To improve the ability to understand basic concepts, principles, rules, and relationships among them in mathematics by observing, analyzing, and organizing social or natural phenomena mathematically
b) To improve the ability to solve social or natural phenomena and problems rationally by way of mathematical thinking and communication
c) To have continued interest in mathematics, to understand the value of mathematics, and to have a positive attitude toward mathematics

3. Characteristics and teaching methods in Korean mathematics textbooks

The most important characteristic in Korean mathematics textbooks is the emphasis of activities. These activities are designed to encourage students to explore mathematical principles by approaching and thinking about mathematics more easily. I will explain these with specific examples. I will also explain the mathematics activities and teaching methods for international understanding with specific examples.