

8. Study on the Evaluation and Development of Curricular Content in Science Education and its Configuration

Leader: SARUTA Yuji, Senior Researcher, Department for
Curriculum Research, Curriculum Research Center

(1) Purpose and Aim of Study

The aims of this study are to investigate empirically the factors that determine the content of the school science curriculum in Japan and how it is configured, to produce basic models for selection and configuration of such content, and to make proposals concerning the content and configuration of the school science curriculum in Japan into the future.

Previous studies undertaken over a three-year period from fiscal 2002 to 2004 (Basic Empirical Study on Curricular Content in Science Education and its Configuration, FY 2002 JSPS Grant-in-Aid for Scientific Research on Priority Areas; Comprehensive Study on Curricular Content in Science Education and its Configuration, FY 2003–2004) have identified the types of curricular content that Japanese students find difficult to comprehend, the content that teachers find difficult to teach, and content such as “ions,” “genes,” and “evolution” that is emphasized in other countries but which in Japan is subject to debate over inclusion in curricula at lower secondary school and earlier.

This present study, conducted over two years from fiscal 2005, addressed the question of how such content should be arranged within the science curriculum. It involved surveying and accumulating information on newly developed curricula and cases in which the content was being used actively in teaching practice in Super Science High Schools (SSH), Science Partnership Programs (SPP), etc., and analyzing the outcomes and issues therein.

(2) Outline of Research Results

- In order to gather information on practice in elementary and lower secondary schools working to improve the content of compulsory science education, we determined to focus on regions participating in the Regional Model Project for Fostering Children’s Fundamental Science Literacy where

instructional materials were being developed to advance project-based and developmental learning. The Tokyo and Kagoshima model regions were selected, and data was gathered and analyzed from these two regions.

- As a school-specific research theme, we examined the case of the Junior High School affiliated with the University of Miyazaki Faculty of Education and Culture, a lower secondary school where, as part of developmental learning, “developmental content” is incorporated into the teaching curriculum in order to make the current Courses of Study more comprehensible. Over a period of two years, classes at this school were observed, materials gathered, and data analyzed.

To bring the study to a conclusion at the end of the five-year term that began in fiscal 2002, the project leader and each research team member produced papers stating their own proposals concerning the content and configuration of science education. These were published in a final report.