

# What “Do Science” means

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I had been mainly involved in elementary and secondary education-related administration until 1997, when I was transferred to the then Research Aid Division, Science and International Affairs Bureau, Ministry of Education, Science, Sports and Culture. Promotion of industrial and scientific education was one of the main issues for the administration of elementary and secondary education during the period when I was in charge from 1985 to 1997.

Right from the start, the Japanese modern education system had been developed in accordance with the School System Ordinance promulgated during the Meiji Restoration, with the aims of introducing Western civilization and encouraging new industries as well as establishing a centralized government. Toward the promulgation of the School System Ordinance in 1872, the Dajokan Declaration No. 214 was issued to clarify fundamental spirit of the School System Ordinance. In this Declaration, the conventional educational philosophy based on the Confucian way of thinking was criticized and rejected while the individualistic and practical educational philosophy based on modern ideas of the Western countries was highly esteemed as the banner of modern schools. The Dajokan Declaration states that “those who aim to make their successful way independently, strive to govern and activate their businesses and thereby intend to have a fulfilling life” must be educated, and that schools are indispensable for such education.

The practical principle had been advocated since the initiation stage of the modern education system in the Meiji period. Since then, the promotion of industrial and scientific education has been constantly discussed as a key issue for the educational administration, and necessary measures and policies have been developed when needed. For example, during the period when I was in charge of the administration of elementary and secondary education, information education and environmental education were promoted, rich scientific sophistication was cultivated, and necessary policies including countermeasures against the tendency of moving away from science were promoted. The Chemical Society of Japan (CSJ) has also contributed to the promotion of scientific education, with its publication of “*Kankyo wo Kagaku no Me-de Miru—“Sogou-tekina Gakushu no Jikan” ni Mukete* (See “*Environment*” from a Scien-

*tific Perspective—Toward “Hours for Comprehensive Studies”*), published in December 1999, *Rika/Kagaku kara-no Teian—“Sogou-tekina Gakushu no Jikan” ni Mukete Part 2 (Proposal from Sciences—Toward “Hours for Comprehensive Studies” Part 2)*, published in February 2001, and so on.

And yet, according to fact-finding surveys conducted by the Japan Science and Technology Agency (JST) and other institutions in the fiscal year 2008, the percentage of science teachers who answered “I feel at least 60% of the students like my science class” was 60%-80% at elementary schools, about 40% at junior high schools, and 10%-40% at ordinary senior high schools. These results indicate fewer students like their science class as their grades in school advance, and this tendency is a general trend witnessed at schools in recent years. There are no changes in or no signs of improvement to this tendency, in spite of active development and implementation of various measures and policies to promote scientific education. In order to deal with this fundamental problem, we must consider what “Do Science” means.

After working at the Research Aid Division, I was mainly in charge of the administration of university academics, and witnessed moments when numerous Japanese scholars were awarded the Nobel Prize. On December 7, 2001, Professor Ryoji Noyori stated at the press conference after receiving the Nobel Prize in Chemistry: “Chemistry is beautiful and exciting.” He also mentioned his motto of “doing research in a fresh and straightforward manner.” I think these remarks express the essence of “Do Science.” We must learn much more from such orientation of children or youths as expressed in the following examples: the earnest eyes of an infant who is watching an insect on the side of the road; the tender heart of an elementary school child who senses the beauty of the sunset; the sensitivity of a junior high school student who tastes sweetness when eating a cabbage harvested in his/her cultivation activity; and the freshness of a senior high school student who feels a chemistry experiment as “fresh.”

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