

DESIGN OF EFFECTIVE CHEMISTRY LABORATORY CLASS BASED ON PARTNERSHIP AMONG HIGH SCHOOL, UNIVERSITY AND GRADUATE SCHOOL

KEIJI MINAGAWA¹, MIKITO YASUZAWA², YUKIHIRO ARAKAWA³,
YASUSHI IMADA⁴ & SHINGO FUJITA⁵

^{1,2,3,4}Institute of Technology and Science, Tokushima University, Tokushima, Japan

⁵Tokushima Prefectural Senior High School of Science and Technology, Tokushima, Japan

ABSTRACT

A chemistry laboratory class at a high school was designed on the basis of continuous cooperation of a high school and a university. The undergraduate and graduate students of the university acted as a teaching assistant (TA) at experiments performed in the high school class. The laboratory program contained experiments aiming at effective education not only for the high school students but also for the TAs themselves. A questionnaire survey for both the high school students and TAs was carried out after the class to evaluate the effectiveness of the class on their skills, knowledge and understanding of chemistry, and other influence. The answers of the high school students have shown that they were satisfied with the experience and interested in chemistry. The answers of TAs have also shown effects on their ability, thinking and/or behavior. They have felt that the teaching experience resulted in improvement of their scientific knowledge and understanding which are directly or indirectly related to their major. In addition, they have noticed the difficulty in explaining advanced scientific topics without using technical terms unfamiliar to high school students, and they have come to understand the importance of communication skills as well as the exact knowledge. From these results, the effectiveness of the cooperation class on the education for both high school and university students has been confirmed.

KEYWORDS: High-School/University Partnership, Chemistry Laboratory Class, Science/Engineering Education, Teaching Assistant