



ESD practice through global approach -7-year practices of developing science lesson modules and fostering integrated decision making ability-

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Hiroshima University High School (HUHS) has devised and carried out overseas exchange programs on ESD issues for 7 years. These programs have been carried out as a part of a government-aided project called SSH (Super Science High School) *1. To start with, we had cooperative study program with a school in Germany in 2009, and next year with a school in Korea, and then gradually have expanded the cooperative schools. Since 2013, we have worked with schools in four countries; Korea, Thailand, Czech and Germany.

Science lesson modules here refers to an assembly of a set of lessons, newly developed and improved for the project. These modules characteristically require the students to make decisions by themselves on given problems. In the course of the decision making, students learn what kind of data or facts should be presented as evidence and how they can make their decisions known to others.

Among several modules we have designed, the one introduced here deals with the use of solar energy, which we carried out with a school in Korea in 2014-2015. It also includes lessons of the fuel cells using energy from hydrogen gas generated by solar cells. It aims to develop global human resources through carefully planned activities. First, the students of both schools make mixed groups and conduct experiments in physics, chemistry or biology on a given problem related to solar energy. Then they discuss in groups using data obtained from the experiments and through the Internet as evidence. After the thorough discussion, each group gives a presentation on their decision.

The analysis of the presentations and the questionnaire to the students revealed the following points:

- 1) Students have come to have multidimensional perspectives on the utilization of solar energy.
- 2) Students have come to combine the results of different experiments when making decisions.
- 3) Students have developed flexible attitudes toward other cultures.
- 4) Students have developed communication skills in English.

*1 SSH: Since 2002, the Japanese Ministry of Education, Culture, Sports, Science and Technology (MEXT) have designated schools that focus their education on science and math as Super Science High Schools and our school has been designated as one of SSH schools since 2003