

How to address the issue of technical terms in school textbooks within the geoscience: Current status and future directions

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The Chemical Society of Japan has been considering some problems associated with technical terms in school textbooks of subjects “Basic Chemistry” and “Advanced Chemistry”, which are used at upper secondary schools, and Chemistry within the subject “RIKA” (similar to natural science) which is used at lower secondary schools in Japan since 2014. Reflecting on these circumstances, NEMOTO et al. (2015) raised similar issues regarding technical terms in school textbooks within the field of Earth Science at the symposium of Disaster Prevention Research Institute (DPRI), Kyoto University related with Earth Science Education on the 29th of August in 2015. Moreover, NEMOTO et al. (2016), and YAMAMOTO and OGATA (2016) reported brief results of the issues entitled “The way to overcome problems associated with technical terms in textbooks within the Earth Science” and “Terminological comparison on “Geography” and “Earth Sciences” of high school textbooks”, respectively, at the Japan Geoscience Union (JpGU) 2016 Meeting on the 22nd of May in 2016.

Subsequently, a subcommittee was set up under the Subcommittee of Nurturing of Human Resources (tentative name), the Committee of Earth and Planetary Sciences at the Science Council of Japan (SCJ) in order to solve the issues last autumn. The first meeting of this subcommittee was held on the 30th of October in last year. We decided to focus on 4 subjects which are “Basic Earth Science”, “Advanced Earth Science”, “Geography A”, and “Geography B” for upper secondary school in the first analysis stage. We analyzed a total of 16 versions of textbooks, comprising all technical terms, which appeared an index on all the textbooks.

NEMOTO et al. (2016) reported that there are several problems associated with technical terms in textbooks related in Earth Science in Japan.

The several problems are as below;

(1) Use of “misused words (tentative)”

e.g.: noble gas in Japanese (noble: rare or precious in Chinese characters)

(2) Use of “several words (tentative)”

Several words are used for one meaning.

e.g.: S-P time, S-P lag time, S-minus-P time, P-S time, lag time, P-S lag time

(3) Use of “two or more meanings words (tentative)”

There is a case in which a technical term has two or more meanings. However, only one meaning is used by the word in the textbook.

e.g.: asperity

(4) Use of “extinct words (tentative)”

Some extinct technical terms are written in extinct figure in some textbooks.

e.g.: Figure of classic classification of igneous rocks

(5) Use of “mispronounce words (tentative)”

e.g.: lithosphere (The word is written in textbook not "****fl(upside down e)(r)" but "****fea" in Japanese Characters, Katakana, which are used for writing foreign words in Japanese.)

Moreover, we find other problems. Newfound issues are as below;

(N1) Use of "lack of unity pronunciation word (tentative)"

e.g.: plum rain season (A pronunciation in Japanese is "tsuyu" or "baiu" ?)

(N2) Use of "lack of unity translation word (tentative)"

e.g.: GPS (There are several translation names in Japanese.)

(N3) Use of "lack of unity connection symbol (tentative)"

e.g.: Itoigawa-Shizuoka Tectonic Line (Several connection symbols are used in Japanese.)

In this presentation, we would like to report current status in order to solve the problem. Furthermore, we hope active discussions on the topics will continue among researchers, educators, related in the field of Geoscience including Geography, and relevant parties such as school textbook publishers.

Keywords: textbook, technical term, subject "Basic Earth Science" , subject "Advanced Earth Science" , subject "Geography A" , subject "Geography B"