

Science teachers' responsibility in addition to science teaching in Japan

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This presentation discusses how to illuminate difference in language-culture assumption between “nature” and “shizen.” The English word “nature” is the generic term used to describe objects of consideration in the scientific way of thinking, and the word “shizen” is believed to be an equivalent of “nature” in science education in Japan. However, “shizen” traditionally makes the different language-culture assumption from that of “nature.” Because science education is conducted in the Japanese language in Japan, pupils are under internal influences of the Japanese language-culture assumption in “shizen.” Then, this translation introduces confusion about scientific concepts into pupils' mind.

As a rule, translation inevitably induces such conceptual confusion. The reason why “nature” is equated with “shizen” is that these words partly share the same referents. Usually, “referent” is defined as: that which is referred to by a word. However, in order to examine the feature of translation, it is necessary to classify “referent” into two. One can be referred to by actual words as the definition describes above, and the other cannot. An illustrative example is found in a paraphrase of Whorf's Linguistic Relativity (Whorf 1959, p.214).

Facts are unlike to speakers whose language background provides for unlike formulation of them.
(Whorf 1959, p.325)

Obviously, the pronoun “them” refers to “facts,” but the two terms do not play the same semantic role. The “facts” can be referred to by actual words whereas “they” cannot be referred to by any words. “They” are not yet articulated in any languages. I would like to call “facts” type1-referent and “them” type2-referent. Consequently, type2-referents have no connotation; then, “they” are arbitrarily interpreted. On the basis of this distinction, the feature of the translation becomes more definite: “nature” and “shizen” partly share the same type2-referents. Thus, the translation arbitrarily overlooks the language-culture assumptions of “nature” and “shizen.” For example, “shizen” sometimes refers to something supernatural (Kawasaki 1996).

This causes conceptual confusion about “nature” in pupils' mind in Japan. In order to avoid the conceptual confusion, it will be effective in revealing the language-culture assumptions to compare between syntagmatic relations “nature” and “shizen” form in the respective languages (Kawasaki 2002). Syntagmatic relations are the relations between words combined in a sequence. The scientific way of thinking combines “nature” with “to observe” whereas the Japanese way of thinking combines “shizen” with “kansatsu.” The English phrase “to observe nature” implies that “nature” should be objectified and described in numerical expression. By contrast, the Japanese phrase “shizen no kansatsu” suggests that mystical empathy with “shizen” should be felt and that it cannot be described in any words. Surprisingly, science education in Japan believes that “shizen no kansatsu” is identical with “to observe nature.” Associating science education with foreign language education, science teachers will succeed in revealing and explaining the difference the in language-culture.

References

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