

Language barriers

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Is language a barrier for your students learning science?

Scientific English has its own special characteristics. There is a lot of specialised vocabulary but sentences are also put together in particular ways. The load of unfamiliar vocabulary and unfamiliar structure can make new ideas difficult for students to grasp.

Words that have a science meaning and an every day meaning

In an attempt to make science more accessible to students many teachers attempt to put scientific ideas into “every day” language. This also has its problems as students can become confused when words have slightly different meanings in everyday use and in scientific contexts. Take for example the sentence:

This *table* shows some different *materials* and their *properties*.

This sentence contains 3 words (table, materials and properties) all of which have slightly different meanings in science than in every day contexts.

In some recent work about interdependence some students displayed confusion over the word, *relationships*. When asked to describe the relationship between 2 things some students referred to things being related to each other in the sense that they came from the same sort of family (as in classification). Other students used it in the sense of “liking each other”. After a class discussion about the meaning of “relationship” in the context of interdependence, some, but not all, students were then able to use the word appropriately.

In a recent trial of a Level 5 resource many students appeared confused about the meaning of the word “control” in a scientific context. Examples of responses to the question “What control do you think scientists used?” that illustrate this confusion are:

- “They issued licenses to get it so it would not be taken by every Joe Blogg and his dog” (Controlling access)
- “They controlled the rival plants and stock and rabbits” (Pest control?)
- “Making sure that the pīkiao survived and of thanking Tāne Mahuta” (Cultural controls)

Time needs to be spent developing students’ science vocabulary to enable them to communicate their ideas precisely. A useful framework for developing academic language with bilingual students was described by Cummins (2000). He suggested that first there needs to be a focus on **meaning**, followed by a focus on **language** and then a focus on **use**. It seems likely such an approach could be useful with all students learning the “language of science”.

Non-technical terms

Another area of language to watch out for is non-technical terms. Words such as *constant, average, preparation, device, independent, effect, accurate, action, complex, rate* etc have been shown repeatedly to cause difficulties for students. These are all examples of words that are not used commonly outside the school context. Students, particularly those from diverse linguistic or cultural backgrounds may not get enough opportunity to hear, and use these words.

Cummins, J.(2000). *Language power and pedagogy: Bilingual children in the crossfire*. Clevedon: Multilingual Matters Ltd.