

The challenge of teaching the Japanese electrical engineering curriculum in English

Stuart Allan

Samuel Mann

Department of Information Technology and Electrotechnology
Otago Polytechnic, Dunedin, NZ
stuarta@tekotago.ac.nz

An increasingly common area for us to practice our trade is to a different sort of international student. In the last year a cohort of international students learning have studied at Otago Polytechnic. The novel twist is that they are learning their home curriculum but in our language (which they are also learning). This poster explores three different learning areas and techniques used in teaching.

The challenge of being involved with this group of 14 students increased on their arrival when their level of written and spoken English became apparent. This level was well below expectation and required a radical and rapid rethink of the required approach.

To provide a meaningful and easily understood lesson, meant having to speak and write slowly and succinctly without jargon in English they understood. This had the effect of doubling the time taken to cover topics or reducing the topics to be covered.

One of the effective tools used to assist in overcoming this problem was to purchase Tamiya “wall hugging mice”, a kit manufactured in Japan and available locally, with Japanese and English assembly instructions on separate sheets.

The students were given the instructions in Japanese and asked to translate these into English. These translated instructions were swapped between the groups, peer reviewed in English, and the assembly, using the translated instructions, completed.

This approach was also used to translate the Japanese instructions into English descriptions of how the various parts of the control circuit worked prior to assembly.

This encompassed the basic electricity theory of circuits, switches and simple motors and showed how each part interacted to make the model operate while using their knowledge of English words, which was extensive, into meaningful and sensibly constructed sentences with the assistance of Japanese instructions.

It was evident that this approach was very successful and popular when the students were able to race their completed models and explain in well structured English how the models worked electrically.

These results can be summarised as “concrete concepts spoken slowly and careful practice”. Lecturers were forced to carefully consider the underlying concrete concepts and teach using simplified practical examples. Lecturers in other areas resorted to using surprisingly similar tools; flowall in programming, kitset building in mechanics. A new cohort is now studying with us and we have combined the electrical and computing components into what we hope will provide a seamless transfer of concepts.

