All Chinese to me

An old joke goes something like this: in heaven the police are British, the chefs are French, the lovers are Italian, the engineers are German and the government is run by the Swiss. In hell, the chefs are British, the lovers Swiss, the mechanics French, the police German and the government is run by Italians. In scientific heaven, the laboratory personnel would be Asian, the funding agencies Scandinavian and the manuscripts written by Brits. My politically correct subeditors won't let me say more about scientific hell other than that all admin is handled by the EU.

The reason for this long-winded introduction is to make the point that, as a native speaker of English, I have an inbuilt advantage in writing about science—even if this is not always obvious from my editorials for *EMBO reports*. English is the universal language of discourse, at least for the natural sciences and, increasingly, for all academic disciplines.

When I first moved to Tampere, colleagues were lining up daily at my door, offering all manner of inducements to edit the final draft of their latest manuscript into perfect English. I soon realized that I could not fulfil their expectations without becoming a full-time translator. For one thing, even those colleagues whose spoken English was impeccable, or whose rare oral mistakes were charmingly logical and arguably an improvement on the original, found written scientific English a significant challenge. It was even a challenge for me sometimes to figure out what their draft actually meant. Versions pre-filtered through official university translators were worse, with scientific arguments frequently rendered incomprehensible by inversions of sense.

Nowadays, my main such activity is reading thesis and manuscript drafts from my own students, where I can safely expunge redundant double negatives, ignore missing articles or skate over potentially game-changing malapropisms. But, most often, in order to focus my mind on the science,

I need to ask the author to send me a cleaned-up version edited by a native speaker familiar with the material, usually another member of the lab who later feels peeved not to have been offered co-authorship.

Despite this irksome process, the final result is that most manuscripts coming out of my lab are written in sufficiently proper English so as not to irritate the reviewers upon whose desktops they land—at least not for language reasons. Principal investigators who are not native English speakers, and who don't have a literate native speaker as a lab member, are not so lucky. It is hard to collect statistics on the fate of manuscripts the corresponding author of which is or is not a native speaker, but good scientific English is virtually indispensable for getting a manuscript to be seriously considered by many reviewers. It might even tip the final balance in the author's favour, by virtue of the resulting clarity concerning the work's importance.

What can be done by those more fluent in the tongues of Göthe, Voltaire, Kivi or Spinoza? It sounds appallingly imperialistic for me to say "why can't they all speak English?", but the current reality is precisely that. Institutions that encourage thesis writing or seminar presentation in other languages are actually handicapping their own scientists, rather than promoting national interests. Raising the global standard of scientific English to the point where scientists on all continents have an equal chance to publish and be fully recognized for their original contributions is essential for us all to realize our potential.

Perfect English is not strictly needed in global business or even in journalism. Where necessary, documents can be finessed by a professional translator or an artful editor. Even Hollywood actors and politicians have someone else write their lines. But scientific writing is different. It is a creative activity that requires the personal engagement of the author.

Clearly, perfecting the English language skills of the world's scientists is a long-term

project. As someone whose pathetic attempts to hold an intelligent conversation in Finnish will testify, learning a new language in middle-age is beyond the capacity of most people, especially if their brains are pre-occupied day and night with other matters. At graduate student level, it is already too late: time 'wasted' on perfecting linguistic competence inevitably decreases productivity at the bench. Prospective scientists should therefore be fast-tracked into an English-language immersion programme from an early age, even if facility with languages is not their natural strength.

In most countries, we consider it natural that kids gifted in music, dramatic arts or sport are taught in specialist schools, where their talents are nurtured. In some places, children with a natural flair for science or maths already have opportunities to study in dedicated academies. If such an education is to succeed in enabling those pupils to fulfil their potential, it must be conducted in an English-language environment.

For now, science funders in non-English-speaking countries should consider providing additional resources to equip laboratories with support personnel combining advanced scientific training with fluency in English. Indeed, this could be developed as a specific profession.

Of course, a majority of the world's scientists might one day vote to replace English with Chinese as the universal scientific language. There are far more native speakers of Mandarin than of English; and the Chinese alphabet is already understood by speakers of many different languages. Perhaps we will all learn spoken English, whilst using Chinese characters for scientific texts. Or perhaps the Google translator will improve to the point that it makes such changes unnecessary: possibly replacing Chief Editors too.

Howy Jacobs

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