

nature cell biology

Breaking the language barrier

English has undoubtedly become the universal language of science. But how did this come about and what are the potential benefits?

In these times of worldwide communications, science is no different from other professions in that English is now the established 'universal' language. Like it or not, most scientific reports are published in English, although some countries also have journals that are published in their native languages. But how did English develop into the dominant language of scientific discourse? Was it a concerted decision or did it happen progressively and 'accidentally'? And was it a positive move for all?

Arabic was used in all countries with an Islamic culture in the middle ages, while in Europe Latin was used for communication in science and education until the 17th century. During the Enlightenment, Latin lost favour as it was thought to be too complicated. Instead, scientific communication became more 'provincial'; German, French, Italian and English were used in their respective countries and colonies, with different languages being more prominent in different disciplines — German, for instance, was widely used in physics, chemistry and some aspects of medicine and psychology. The relative use of these languages fluctuated through history, reflecting the relative growth and decline of science, culture and economics in these countries. Thus, the use of French predominated in the 18th century, whereas German was most widespread in the 19th and English dominated the 20th. Social upheaval also played a role — the use of French declined dramatically after World War I, whereas that of German increased in parallel until World War II. After World War II, and especially in the past 30 years, English progressively established itself as the primary language for scientific communication as America came to dominate both basic research and technology. In the 1920s the need for a universal language of science was debated, and a synthetic language, Esperanto, was developed but never widely used.

Despite the obvious appeal of having a common language that allows scientists around the world to communicate with one another, there can indeed be some drawbacks in using English for all communication — non-native English speakers can be at a disadvantage compared with native speakers when it comes to expressing and highlighting the interest of their papers and communicating with editors and referees. Careful copy editing can tackle the problem of accessibility of accepted manuscripts, but upstream of this stage it is down to all parties to ensure that they evaluate work on its scientific merit rather than its proper use of grammar.

The obvious advantage of a universal language for scientific communication is that findings can be more widely accessed. Yet some institutes based in non-English-speaking countries are still reluctant to see internal or national communication of science being made in English rather than in their national language. But this only seems to restrict possibilities for scientists; it might be more difficult to attract foreign postdoctoral students to institutes at which internal communication is not in English. Also, students at such universities might be at a disadvantage when interviewing for a position abroad if they are not accustomed to presenting their work in English. Finally, the number of possible referees for an external advisory board would be restricted if not all reports are in English, as would the number and diversity of lectures in institutions at which all lectures must be given in a native language.

The use of a universal language for communication in science is unavoidable, and resisting this concept for the sake of cultural difference would seem to be counterproductive. However, the use of national language and less technical language is useful in communicating science to the general public, as is the case with the *Nature* gateways in Japanese, Chinese, Korean and German (<http://www.nature.com>). □