

Language Hegemony of Lingua Franca in Research and Higher Education

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What are the Problems around a Lingua Franca?

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A study in 2011 by the Oxford Internet Institute identified that Chinese is by far the most widely spoken first-language, whereas Chinese-language academic publications were too few to include as a unique category. English was the third most spoken first-language but far and away the most published academic language. In comparison, Spanish was spoken equally widely as English as a first language but was very much less represented in academic publishing (1). That Anglophone dominance has continued to be reinforced by the policies of publication databases. For example, Scopus contains 93% English-language articles even though the inclusion policy accepts 40 languages. As a result, a disproportionate volume of high-impact articles occurs in English language publications. Reinforcing the bias, Scopus requires:

- English-language titles and abstracts for all research articles.
- an English-language journal homepage.
- and references to be in Roman script (2).

Languages that are frequently inter-translated are called high-resource languages. A systematic review in 2023, of the use of translating technologies, found that three-quarters of the studies include a high-resource language. Moreover, in nearly two-thirds of the studies, English was the target language of the translation, where non-Anglophone scholars seem to be using translation tools as writing aids to produce texts for publication in English. The study concluded that translation tools are not necessarily helping to displace English as the key language of scholarly communication, nor are they creating a genuinely multilingual scholarly communication ecosystem. Instead, the responsibility for translation in scholarly publishing continues to rest on the shoulders of non-Anglophone scholars, while the English-speaking scholars remain in a privileged position (3).

[INSERT FIGURE 3_1 HERE]

Some of this is shown alternatively in this graphic from the Oxford Internet Institute report, showing the proportion of English-language academic publications compared to Spanish-language, French, etc. The large, coloured rectangles are the language groups, with sub-sections showing the country of origin. Also note here that the lightness or darkness of the country-rectangles indicates their impact-factor. Within the English-language sector there is not only high production but also high impact. This influences what we see next.

Since 2011 there has been a 5-fold increase in academic publication from China. This is mostly monolingual, in either English or Chinese. Over this period, China has risen to become the world's largest producer of scientific knowledge. According to Digital Science's "Dimensions" database, last year there were almost 830,000 papers that featured researchers based in China, representing around 15% of the world's 5.4 million articles. According to the journal *Nature*, China overtook the United States in 2022, for the number of contributions to natural-sciences articles. The majority of this research was disseminated in journals published by companies based in Western countries, rather than China's own domestic publishers. The biggest 20 international publishers by output, published 83% of all research articles involving authors based in China from 2012 to 2021 (4).

The Chinese government has stimulated this growth through investment, boosting academic publishing in a mixture of Chinese and English languages. The majority of this has been in English-language publishing because the Chinese government seeks high impact for its research on the global stage. The Chinese-language publishing infrastructure is weak, and since Chinese is not widely spoken as a second language, the readership for Chinese-language academic publishing is not international in its reach and is therefore limited in its impact. This shows that, aside from the fact that English is now a widely used second language, THE MAIN INTERNATIONAL DRIVER FOR PUBLICATION IN ENGLISH IS IMPACT FACTOR. So how are we to interpret this data, and what are the advantages and disadvantages of the current position?

If Chinese researchers establish themselves as high-impact, and therefore setting the research benchmarks in various fields, the role of English as an academic language may be challenged. This could happen relatively quickly, so there may be a new demand for Machine Translation INTO Chinese from English, to maintain impact in a new world of Chinese-language publishing. Furthermore, internet domain names (URLs) in non-Roman scripts were only facilitated by ICANN in 2009, long after the establishment of the internet as a basic academic resource. This delay enabled Roman script to be established as the dominant medium, to the advantage of western countries. The marginalisation of non-Roman scripts also had the effect of restricting access by some users. For example, keyboards may not have Roman characters. This advantage of ACCESS is coming to an end. Today, one can copy-paste the Chinese characters 创造力 (yuo-chang-zhao-li "creativity") into Google and get Chinese-language results on a UK-oriented browser, and then simply use Google Translate to read them in English. Therefore, technical solutions could easily facilitate a transition towards global dominance by the Chinese-language instead.

Unfortunately, the increasing visibility of non-Euro-centric research has been accompanied by an increase in the retraction rate from those countries. Medicine, Engineering, and Materials Science are particularly affected, with high rates of retractions for papers involving collaborators from Saudi Arabia, Pakistan, Russia, and elsewhere. These fields have high human impact, involving life-or-death problems, and therefore there are ethical implications for any "publish-or-perish" policies such as those demanded by the Chinese government.

Clearly, both the language and the writing system have consequences on visibility, access and the potential for impact. There are technical, historical and cultural dimensions to these issues. Language is more than just a set of technical terms, it is a culture of communication, and a surprising amount of this communication is based on a language-specific set of metaphors. Metaphors rarely translate effectively because the underlying assumptions about time and space vary, especially when translating between cultures with different scripts and writing systems. Interdisciplinary research teams of cognitive scientists and sociolinguists have identified that everyday objects tend to be arranged in space according to a mental timeline, which varies in direction across cultures.

[INSERT FIGURE 3_2 HERE]

For example, a study found that Arabic speakers, who write from right to left, tended to associate spatial distribution towards the left as indicating the future, and conversely distribution to the right as associated with the past (5).¹ This is the opposite spatial metaphor for past and future that English speakers demonstrate and is part of a wider socio-linguistic context of metaphors and abstract constructs that we inherit from our native language, such as high and low notes in music, etc. These spatial metaphors for time are ubiquitous, for example, Google calendar buttons should, ideally, correspond to the user's sense of past and future to optimise the user experience and to avoid confusion. Another study revealed that English speakers had faster reaction times when the key they had to press to indicate that an event happened earlier than another event was located on the left, compared to when the key was located on the right; and conversely, Hebrew speakers displayed the reverse patterns (6).

These linguistic influences have real-world consequences, for example, in the design of nuclear safety equipment and fighter aircraft, where the layout of controls that must be undertaken quickly and, in a sequence, may have life and death consequences. On the other hand, there are clear benefits of international standardisation for interoperability. The argument here is not about implementation, but about ideation and knowledge creation. Therefore, given the fundamental role that metaphor plays in our understanding of abstract concepts, we should be concerned about any collapse of linguistic diversity because of the consequential collapse of metaphoric diversity. If we only understand new and challenging

¹ Park J, Gagné CL, Spalding TL. Writing direction and language activation affect how Arabic-English bilingual speakers map time onto space. *Front Psychol.* 2024 Jan 24;14:1356039. doi: 10.3389/fpsyg.2023.1356039. PMID: 38327507; PMCID: PMC10849100.

concepts in terms of one set of metaphors, isn't that going to LIMIT not just our research communication but also our knowledge advancement?

ENDNOTES

(1)

Graham, M., S. A. Hale, and M. Stephens. (2011) *Geographies of the World's Knowledge*. Edited by Corinne Flick. London: Oxford Internet Institute & Convoco Edition.
https://www.oii.ox.ac.uk/wp-content/uploads/old-docs/convoco_geographies_en.pdf

(2)

Scopus: Content policy and selection.
<https://www.elsevier.com/products/scopus/content/content-policy-and-selection>

(3)

Bowker, Lynne. (2024) 'Multilingualism in Scholarly Communication: How Far Can Technology Take Us and What Else Can We Do?' *The Journal of Electronic Publishing* 27, (1): 369–76. <https://doi.org/10.3998/jep.6262>.

(4)

Owens, B. (2024) China's research clout leads to growth in homegrown science publishing. *Nature* 630, S2-S4. <https://doi.org/10.1038/d41586-024-01596-2>

(5)

Fuhrman, O. and Boroditsky, L. (2010), Cross-Cultural Differences in Mental Representations of Time: Evidence from an Implicit Non-linguistic Task. *Cognitive Science* 34: 1430-1451. <https://doi.org/10.1111/j.1551-6709.2010.01105.x>

(6)

Park J, Gagné CL and Spalding TL (2024) Writing direction and language activation affect how Arabic-English bilingual speakers map time onto space. *Front. Psychol.* 14:1356039. <https://doi.org/10.3389/fpsyg.2023.1356039>.