

Study suggests different written languages are equally efficient at conveying meaning

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A study led by the University of Southampton has found there is no difference in the time it takes people from different countries to read and process different languages. Credit: University of Southampton

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The research, published in the journal *Cognition*, finds the same amount of time is needed for a person, from for example China, to read and understand a text in Mandarin, as it takes a person from Britain to read and understand a text in English - assuming both are reading their native language.

Professor of Experimental Psychology at Southampton, Simon Liversedge, says: "It has long been argued by some linguists that all languages have common or universal underlying principles, but it has been hard to find robust experimental evidence to support this claim. Our study goes at least part way to addressing this - by showing there is universality in the way we process language during the act of reading. It suggests no one form of written language is more efficient in conveying meaning than another."

The study, carried out by the University of Southampton (UK), Tianjin Normal University (China) and the University of Turku (Finland), compared the way three groups of people in the UK, China and Finland read their own languages.

The 25 participants in each group - one group for each country - were given eight short texts to read which had been carefully translated into the three [different languages](#). A rigorous translation process was used to make the texts as closely comparable across languages as possible. English, Finnish and Mandarin were chosen because of the stark differences they display in their written form - with great variation in visual presentation of words, for example alphabetic vs. logographic, spaced vs. unspaced, agglutinative vs. non-agglutinative.

The researchers used sophisticated eye-tracking equipment to assess the cognitive processes of the participants in each group as they read. The equipment was set up identically in each country to measure [eye movement patterns](#) of the individual readers - recording how long they

spent looking at each word, sentence or paragraph.

The results of the study showed significant and substantial differences between the three language groups in relation to the nature of eye movements of the readers and how long participants spent reading each individual word or phrase. For example, the Finnish participants spent longer concentrating on some words compared to the English readers. However, most importantly and despite these differences, the time it took for the readers of each language to [read](#) each complete sentence or paragraph was the same.

Professor Liversedge says: "This finding suggests that despite very substantial differences in the written form of different languages, at a basic propositional level, it takes humans the same amount of time to process the same information regardless of the language it is written in.

"We have shown it doesn't matter whether a native Chinese reader is processing Chinese, or a Finnish native reader is reading Finnish, or an English native reader is processing English, in terms of comprehending the basic propositional content of the language, one language is as good as another."

The study authors believe more research would be needed to fully understand if true universality of [language](#) exists, but that their study represents a good first step towards demonstrating that there is universality in the process of reading.

Provided by University of Southampton

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