

An Investigation of Cognitive, Linguistic and Reading Correlates in Children  
Learning Chinese and English as a First and Second language

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## **Abstract**

For the last two decades, an extensive line of research has focused on how Chinese children learn to read and write Chinese as a first language and English as a second language. Researchers identified a number of basic cognitive, metalinguistic and linguistic skills making contributions to the reading of Chinese and English words by native Chinese-speaking children, with some differences between the two languages. It appears that learning to read Chinese taps different cognitive, linguistic and orthographic skills than learning to read English.

Only very limited research has so far addressed the phenomenon from the angle of children with a non-Chinese language background, i.e. those learning alphabetic languages. It is not known, for example, if children learning Chinese as a second language might also go through similar cognitive and linguistic processes in learning to read Chinese as native Chinese-speaking children. The question is, how similar or dissimilar learning to read Chinese is for children with an alphabetic language background compared to native-speaking Chinese children. This research project addresses these questions by examining a group of children learning Chinese as a second language in a Hong Kong context.

A majority of Hong Kong international schools offer Chinese classes of at least 40 minutes each day, with Chinese being taught as a foreign language. A minority offers an English-Chinese bilingual curriculum, with at least 40% of all teaching done in Chinese. For this research, 102 8-9 year olds (62 native and 40 non-native Chinese-speaking children) from a bilingual school were assessed, and 88 8-9 year olds (47 native and 41 non-native Chinese-speaking children) from two schools teaching Chinese as a foreign language, i.e. one lesson each day. Most of the non-native Chinese-speaking children grew up with English as their first language

(L1). Other children speak other alphabetic language such as Dutch, German, Spanish, or Korean as their L1.

For this research, parental evaluations of the children's English and Chinese language proficiency, exposure and learning attitudes were collected to obtain data on the children's language background. The children were tested on a range of cognitive, language, metalinguistic and literacy skills in both Chinese and English. In analyzing the data, the children were separated into a native and a non-native Chinese-speaking group based on the reported first language of each child's mother.

Data from the two types of schools were analyzed separately. In both types of schools, native Chinese-speaking children performed similarly to non-native Chinese-speaking children on English language related tasks, but outperformed them in Chinese language related tasks. However, the two groups were similar in pure visual skill tasks, although native Chinese-speaking children outperformed the non-native children on visual-orthographic skills. Regression analyses showed that native Chinese-speaking children rely heavily on visual-orthographic skills and on their knowledge of Pinyin in Chinese word reading, while children speaking alphabetic languages rely on phonological awareness skills and pure visual skills in learning to read Chinese.

This research has confirmed the theory that learning to read Chinese exercises a somewhat different set of cognitive and linguistic skills than learning to read English. This research has strong implications for teaching Chinese as a second language. Children with an alphabetic language background rely on their first language experience in learning to read Chinese. Further research is needed to study this group of children.

## 摘要

在過去的兩個世紀，一系列廣泛的研究已經著眼於中國兒童以中文為母語和英文為二語的閱讀和寫字方面的探索。研究發現母語為中文的兒童在認讀中文和英文詞語過程中，一些基本的認知，元認知，以及語言方面的能力和技巧對他們的中文和英文閱讀有相似且不同的作用。同閱讀英文相比，閱讀中文似乎運用不同的認知，語言和正字法能力。然而，極少有研究從以字母語言為母語的兒童學習中文二語的角度探索這個中文閱讀。現在還不明確譬如這些兒童是否像以中文為母語的兒童一樣在閱讀中文的過程中經歷相似的認知和語言加工。問題在於和中文為母語兒童相比，以字母語言為母語的兒童在學習閱讀中文方面有哪些的相似和不同處。這項研究關注這些研究問題，測試一群在香港環境中學習中文為二語的兒童。

在香港眾多國際學校中，大多數學校每天有一節40分鐘的中文課。這些學校將中文作為一門外語學習。少數學校採用英中文雙語課程，這些學校的學生在校有至少40%的中文學習時間。這項研究一部分採樣來自一所採用英中雙語課程的學校（共102名8 - 9歲兒童，62名母語為中文的兒童，40名母語為非中文的兒童），另一部分數據採樣來自兩所以中文為外語（一天一節40分鐘中文課）和英文為主要語言的學校（共88名8 - 9歲兒童，47名母語為中文的兒童，41名母語為非中文的兒童）。大多數以中文為二語的兒童在英文為母語的環境中成長，這些兒童中少數以其他字母語言為母語，例如荷蘭語，德語，西班牙語或是韓語。

在这项研究对儿童语言背景调查中，所有兒童的家長們對其子女的英文和中文語言能力，語言環境和學習態度的評估為這項研究提供了詳盡的兒童語言背景資料。我們对这些儿童进行了一系列中文及英文閱讀相關的任務测试。在數據分析時，我們以這些兒童母親匯報的第一語言為標準，將這些兒童分為中文為母語和中文為非母語的兩組。

因為課程設置不同對語言習得的影響，我分開處理分析兩類採樣學校的數據。在英文閱讀相關的任務上，兩類學校的中文母語兒童和非中文母語兒童表現相當。但是無論是雙語學校還是英文學校中的中文母語兒童都在中文閱讀相關任務上較非母語兒童表現出顯著的優勢。兩類學校的兩組兒童在視覺能力上表現相同，但是在中文正字法相關的視覺能力上，中文母語兒童優於非母語兒童。結構方差分析表示中文母語兒童在認讀中文字詞中大量運用正字法相關的視覺能力和拼音知識，而非母語兒童依賴語音意識能力和視覺能力認讀中文字詞。

理論上，這項研究肯定了閱讀中文運用較閱讀英文不同的認知和語言能力。這項研究對中文二語教學有深刻的影響。非中文母語特別是以字母語言為母語的兒童在學習中文時會依賴其母語的經驗。今后的研究需要更進一步的研究這個特殊群體。

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