

Developmental Importance of Handwriting and Cognitive Skills in Children's Chinese Literacy  
Acquisition in Beginning and Advanced Learners

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## Abstract

Four measures of handwriting, along with other reading-related cognitive skills, were administered to 141 kindergartners (K3) and 110 fifth graders (P5) in Hong Kong local schools. Handwriting measures included writing speed, copying skills, stroke order, and delayed copying and these tasks were chosen on the basis of the following reasons: (a) the exploration of automaticity, (b) the role of motor-orthographic integration, , and (c) the special property of stroke order in Chinese characters. The present study aimed to explore how different elements of handwriting were related to children's word writing. Also, it assessed the extent to which handwriting measure is a unique contributing factor for word writing, and other important cognitive skills such as morphological awareness, orthographic awareness and phonological awareness were assessed. The developmental importance of handwriting would also be examined in K3 and P5. Hierarchical regression analyses in K3 revealed that all handwriting measures uniquely contributed to children's word writing, when age, nonverbal reasoning and vocabulary knowledge were statistically controlled. These handwriting measures still remained significant in K3 even after statistically controlling morphological awareness, orthographic awareness and phonological awareness. However, the importance of handwriting diminished with age that only delayed copying contributed to children's word writing in P5. The present study informs a better understanding of the role of handwriting in children's literacy acquisition and its importance in the course of development.

*Keywords:* handwriting, orthographic, morphological, phonological, Chinese writing

## 摘要

是此研究主要針對手寫和其它認知能力如何影響孩子的語言能力，另外，從發展角度去了解手寫和認知能力如何在不同階段對兒童學習語言的發揮不同的作用。手寫方面，這此研究探討自動化、手部和字形的協調和中文獨特的筆順，作者根據過往的文獻，選擇了四個項目，包括數字速寫、描繪、筆順和陌生字默寫，去了解以上想探討的方向。另外，其它認知能力的項目包括語素意識、語言意識和字形意識。最後，我們在分析時，控制其他因素包括年齡、智商程度和詞彙知識。本研究共邀請了141位幼稚園高班學童和110位小學五年班學童參與這次測試。分層回歸分析發現，即使智商程度和詞彙知識在統計時被控制掉，所有有關書寫的因素都與高班學童的詞語默寫有關。而這關聯依然存在，即使控制項目加入其它認知能力的項目包括語素意識、語言意識和字形意識。然而，減少隨著年齡的增長，手寫的重要性也會隨之下降。在小學五年班學童的分析裡面，只有陌生字默寫這個項目能夠解釋學生的詞語默寫能力。總結，本研究的結果有助更好地理解手寫對兒童識字能力的重要性，以及更好地理解手寫在兒童發展過程中不同的影響。

TABLE OF CONTENTS

LIST OF FIGURES AND TABLES	v
CHAPTER 1: INTRODUCTION.....	1-3
1.1 Foundations of spelling in alphabetic languages.....	3-5
1.2 Writing development: Morphology, orthography and phonology ...	6-10
1.3 Handwriting in literacy development.....	10-12
1.4 Handwriting in Chinese literacy development.....	12-16
1.5 The present study.....	16-17
CHAPTER 2: METHOD	
2.1 Participants.....	18-19
2.2 Measures.....	19-25
2.3 Procedure.....	25-26
CHAPTER 3: RESULTS	
3.1 Preliminary analysis.....	26-30
3.2 Handwriting measures in word writing in beginning learners.....	30-35
3.3 Handwriting measures in word writing in advanced learners.....	35-38
CHAPTER 4: DISCUSSION	
4.1 Theoretical implications.....	39-40
4.1.1 Writing fluency and word writing.....	40-41
4.1.2 Copying skills and word writing.....	42-43
4.1.3 Stroke order and word writing.....	43-45
4.1.4 Delayed copying and word writing.....	45-47
4.2 What skills facilitate good spelling? .....	47-48
4.3 Educational implications.....	48-50
4.4 Limitations.....	50-51
4.5 Conclusion.....	51
REFERENCES.....	52-60

## LIST OF FIGURES AND TABLES

Figure 1	21
<i>Example of semantic radical awareness task</i>	
Table 1	27
<i>Reliabilities, Ranges, Means, Standard Deviations for All Tasks in the Present Study</i>	
Table 2.1	28
<i>Zero-order Correlations of All Measures Among Kindergartners</i>	
Table 2.2	29
<i>Zero-order Correlations of All Measures Among Fifth Graders</i>	
Table 3.1	33
<i>Hierarchical Regression Explaining Word Writing in Kindergartners from Handwriting</i>	
Table 3.2	34
<i>Hierarchical Regression Explaining Word Writing in Kindergartners from Handwriting and All Other Cognitive Skills Included</i>	
Table 3.3	35
<i>Hierarchical Regression Explaining Delayed Copying in Kindergartners</i>	
Table 4.1	37
<i>Hierarchical Regression Explaining Word Writing in Fifth Graders from Handwriting</i>	
Table 4.2	38
<i>Hierarchical Regression Explaining Word Writing in Fifth Graders from Handwriting and All Other Cognitive Skills Included</i>	
Table 4.3	38
<i>Hierarchical Regression Explaining Delayed Copying in Fifth Graders</i>	