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Decoding Strategies Used by Chinese Primary School Children

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This study explored the ways Chinese children remember and decode characters. Thirty primary school children in two cities in China reported how they recognized and remembered individual characters. Of the ten strategy categories identified from the children's responses, three that analyzed character structure dominated. These three categories, as well as several others, emphasized visual processing rather than phonetic processing and suggest emphasis on visual perception. The first-, second-, and third-grade children readily divided characters into structural components and individual strokes. The study concludes that learning written Chinese engaged these children in using semiotic systems unique to their written code and distinct from those usually emphasized in English literacy learning.

Interviewer: Is [the character] right or not?

Child: No.

Interviewer: How do you know that?

Child: Because the end part of it shouldn't be this horizontal bar, but four dots.

First Grade Student, China

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When Chinese children learn to decode and comprehend characters they focus on writing system components quite different from those found in the English alphabet. Probing early literacy practices in systems that function differently than our own can provide insights about the different ways children learn and process written symbols. This study investigates the literacy practices and strategies that young Chinese children report using to remember and decode the densely

packed characters of their writing system. Using single character words with small errors in them to stimulate children's oral commentary, we interviewed first, second, and third grade children in two Chinese working-class schools about what strategies they used to remember and decode them. Using a constant comparative method of data analysis (Bogdan & Biklen, 1982; Glaser & Strauss, 1967), we determined recurring categories of strategy use. Unlike most studies of character recognition and processing reported in the West (Feldman & Siok, 1999; Ju & Jackson, 1995; Perfetti & Zhang, 1995; Shu & Anderson, 1999) and in China (Peng, Li, & Liu, 1994; Yu, Feng, Cao, & Li, 1990; Zhang & Feng, 1992), we chose to cast the net widely and elicit, to the greatest extent possible, what the children themselves had to say about the nature of their written code and how they remember its components. By verbalizing their processes during the interviews, the children in this study revealed some of the ways they weave together complex strategies and bits of knowledge that they employ as tools for recognizing and remembering visually complex written symbols.

Background

The current study grew out of a foundation of two decades of microanalytic cross-cultural investigations in U.S. and Chinese contexts (see Regan, Pine, & Stephenson, 2000 for a synthesis). One of our research strands has probed and compared the nature of literacy in China and the United States. During investigations carried out by teams that include early childhood and elementary educators, we have been continuously struck by the dissimilarity of skill emphases and perspectives required to negotiate the English and Chinese writing systems. English users speak of sounding words out, of the sounds of poetry, of invented spelling; Chinese users speak of balanced characters and stroke order, of the appearance of a character, of the visual allusions found within the characters of a poem. Our studies of young Chinese children have often uncovered, from a Western perspective, unusual visual memory skills (Pine, 1993; Regan et al., 2000; Stephenson, 1994) related to two dimensional shapes and patterns. For those of us from China, this visual acuity seemed commonplace until we saw children and adults in the United States struggle with what we consider the simplest of Chinese literacy tasks.

We therefore decided to probe the early stages of literacy behavior among Chinese primary grade children and, in the current study, what specific strategies they report using to decode and remember characters. We hypothesized that if adults using the two writing systems view literacy from such different perspectives, then this difference might manifest itself in children's early literacy learning.

Nature of the Chinese Writing System

The Chinese writing system employs a knowledge base quite different from an alphabetic system, such as English. Although some researchers dispute what cognitive mechanisms are triggered while reading Chinese (Cheng, 1992; Perfetti & Tan, 1999), Chinese¹ clearly requires some skills and strategy configurations that are quite different from English, Spanish, and other writing systems that utilize the Latin alphabet.

To be literate enough to read a Chinese newspaper, a sixth-grade child must learn approximately 2,500 characters (Hudson-Ross & Dong, 1990; People's Education Publishing House, 1993; Yin & Rohsenow, 1994). For the average adult, 7,000 to 9,000 characters are enough to read general books (Yin & Rohsenow, 1994), and 3,000 are sufficient for writing. Academic and professional literacy requires much more. Although repetition of character components often occurs, especially when simple characters appear as components of more complex characters, children's learning task for this logographic system requires them to memorize hundreds of tightly constructed characters.

The internal structure of characters requires attention to minute detail. Each character is comprised of multiple strokes—sometimes as many as 30—which have a proper order and method of writing. A character has balance and geometric beauty in and of itself and is situated within a visualized square space (Regan et al., 2000). The Chinese envision a character as black lines within a white space rather than just black lines, and when they write a character they envision a white square intersected by crossed lines into which the character is placed.

Characters sometimes have a component on the left and another on the right, sometimes one up, one down (see Figure 1). Sometimes a character has three characters embedded as components within it, and so forth. Shapes are complex and can often be confused with other shapes. Many times, for example, one dot or stroke can indicate very different meanings (e.g., zhé [bend] (折) and chāi [disassemble] (拆). Also, one pronunciation can have many meanings and is represented by different characters. For instance, in the Xinhua children's dictionary [Xīnhuá Zìdiǎn] (Xinhua, 1998) the fourth tone yàn pronunciation represents 23 different characters with meanings spread from *disgusting* to *banquet* to *learned person*.

Compared to the words and morphemes of alphabetic writing systems, Chinese characters are relatively independent from the spoken language (Taylor & Taylor, 1995; Yin & Rohsenow, 1994). Characters represent primarily the meaning of a morpheme and only indirectly its sound. In Chinese, a literate person often sketches a character in the air to clarify a meaning. For example, one man in the midst

