ANALYSIS OF DEVELOPMENTAL PATTERNS IN WRITING ACQUISITION OF CHINESE STUDENTS

Xiwu Feng Ed.D
LaGuardia Community College of the City University of New York, USA

Abstract

The study investigates possible developmental trends in Chinese writing acquisition. Over three hundred Chinese elementary school students were enrolled in one-year empirical study. Writing samples were collected during four separate visits at an interval of three months in order to serve as literacy measure over time. The study examined students' writing performance during the different time interval as well as writing development in the grade level. An error analysis of students' writings reveals developmental patterns of using phonological and semantic strategies in solving problems during the writing process. Findings of the study may provide references for educators to the consideration of reevaluating literacy curriculum and pedagogy.

Keywords: Developmental patterns, error analysis, invented spelling, writing acquisition

Introduction

The results of research in spelling development among alphabetic scripts (Morris, 1993; Templeton & Bear, 1992) show that children's invented spelling follows developmental patterns and their spelling errors reflect a growth in orthographic knowledge. According to these studies, children's orthographic knowledge can be assessed during certain developmental stages and their spelling performance has predictive value to educators in planning spelling and literacy instruction. Study (Ungan, 2008) also analyzes expression errors in writings by primary school students in terms of certain variables that affect writing process. Researchers (Shen and Bear, 1997) have examined invented spelling by Chinese speaking children to determine whether children's invented spelling in a logographic language as Chinese would show comparable patterns of orthographic knowledge development. There is strong evidence that Chinese children's spelling errors are categorizable and that the nature of errors reflects a logical developmental process in children's orthographic knowledge. Therefore Chinese-speaking children's invented spelling can be used to interpret the development of their orthographic knowledge.

From applicable perspective, researchers (Lam et al., 2004) have designed variation-affording learning object that enables the learners to experience the variations in some specific critical features of Chinese characters. The experience of important variations in the critical aspects of the content is able to show how learners commonly make errors in writing the characters. Out of the analysis of the learners' errors, variations in structural features of Chinese characters are pulled out and embodied in the design of a learning object. Learners thinking with the learning objects can thus implicitly develop a sense of the structural features of Chinese characters.

Existing research (Doolan & Miler, 2012) successfully uses quantitative and qualitative methods to compare error patterns in a corpus of Generation 1.5, L1, and L2 college student writing. This error analysis provides important information on error patterns, error frequency and type. A qualitative analysis also identified specific patterns of difference

between Generation 1.5, L1, and L2 verb error production. Differences found in both the quantitative and the qualitative analyses suggest that the category of Generation 1.5 writing may indeed be characterized in part by an increased likelihood of difficulty in controlling the accuracy of various language forms.

Studying the acquisition of a writing system offers unique information on the development of knowledge in a writing system. One way to study this learning process is to look at native children's development of writing. Thus, the primary purpose of the study was to examine writing development in Chinese language acquisition by Chinese elementary school children from first grade through sixth grade. Analyzing invented spelling would provide access to assessing the orthographic knowledge acquired and phonologic, graphemic and semantic strategies used in writing process. The results of the study may give insights into cognitive and metacognitive process of young Chinese readers whose language is linguistically and culturally different from English.

The Chinese Writing System

Chinese is often referred to as a logographic writing system, or sometimes more accurately labeled as a morphosyllabic writing system (DeFrancis, 1989; Perfetti & Zhang, 1995). The basic unit of the ***Chinese*** writing system is the ***character***. Each ***character*** represents a monosyllabic morpheme and is pronounced as a syllable. Unlike an alphabetic writing system, the graphemes in ***Chinese*** do not correspond to individual phonemes. Morphemes are relatively flexibly combined in Chinese to form different words or concepts. Meanings of new vocabulary concepts in Chinese are generally more transparent than they are in English because of sophisticated concepts built from simple ones previously learned (McBride-Chang et al., 2003).

The orthographic system of Chinese can be described at different levels, such as, strokes, radicals, characters, and words. Words contain one or more characters, which, in turn, are composed of one or more radicals while radicals are composed of one or more strokes (Wang et al., 2003). A radical can appear in different positions within a complex character, at the top or the bottom, to the left or the right of a character. Left-hand radicals, usually termed ***semantic*** radicals, often give a clue to the meaning of the character, whereas right-hand radicals sometimes give a clue to the pronunciation of the character. Radicals are the basic components of ***Chinese characters***. Most Chinese characters are comprised of two components, a phonetic radical, which might give some indication of the pronunciation of the character, and a semantic radical, which sometimes offers a clue to the character's meaning. The radicals are orthographic units that may carry values as morphemes. Some of the radicals themselves can be ***characters***, providing both meaning and pronunciation information for the whole ***character*** (Shu & Anderson, 1997).

Characters can be categorized into simple ***characters*** and compound ***characters*** based on their structural complexity. A simple ***character is composed of*** one single radical that cannot be further divided into distinct radical components. Compound ***characters*** are those that contain two or more distinct radical components (Ding, Peng, & Taft, 2004; Zhu, 1988). The structural complexity of the ***character*** may affect beginning learners of ***Chinese***. It is apparent that simple ***characters*** have a simpler visual-orthographic structure than compound ***characters***; therefore they will pose less of a challenge for the beginning learners in ***character*** identification compared to the compound ***characters***. The total number of Chinese characters is about 50,000, of which 5,000 to 8,000 characters are in common use. About 4000 are used in everyday written communication (Shen and Bear, 1997).

Since there are many homophones in Chinese, Chinese speakers have to learn to distinguish among characters with very different meanings but with identical sounds from the very beginning. A major task for Chinese readers, then, is to learn what character is

associated with what spoken syllable in context. It is important for a learner to clarify a given meaning from several choices for a single sound in Chinese character acquisition (McBride-Chang et al., 2003).

Method

Participants

Three hundred-twenty (first-sixth grade) students were selected from an urban public school district, which is a culturally diverse region located in the northwest of China. The participants had received formal education in Mandarin from kindergarten to the current grades. In general, students attend kindergartens for 3 years, roughly from ages 3 to 5. During this time, children are taught to read using only the "look and say" method, in which the emphasis is on repetition of the character's name paired with the printed character. Children start primary school with first grade at age of 6, in which they begin reading and writing by learning Pinyin, the Chinese phonetics.

Among the participants, there were 51 first graders (mean age = 6.06 years), 54 second-graders (mean age = 7. 25 years), 52 third-graders (mean age= 7.96), 50 fourth graders (mean age = 9.96 years), 44 fifth graders (mean age = 11.43) and 42 sixth graders (mean age = 12.32).

Procedure

The study was conducted for the entire academic year, during which children were asked to write four compositions at an interval of three months. Writing samples were collected from nearly 300 students during four separate visits in order to serve as literacy measure over time. Writing samples by those who did not participate in all four visits were eliminated from the collection for accuracy and consistency of the study. The initial writing started in the middle of the fall semester and the second was done at the end of first half of the academic year. The third writing was done in the middle of the spring semester and the final one was at the end of the academic year. Participants were carefully instructed on the procedure of the study at the initial writing. They were aware that their participation was voluntary and their writings would not be graded. They were encouraged to write down their thoughts, feelings, experiences, and so on. They were also told not to worry about the way they wrote. In other words, they could use any methods, such as using drawing, partial words, or synonyms, as long as they expressed what they had in mind. Each time they were given 30 minutes to write and they were asked to write as much as they could within the time period. No extra time was given and they were not allowed to stop until the end of the session. No reference was allowed and no hint or assistance was provided while students were writing. At the end, there was no explanation or discussion over the writing either. The same instruction and requirements were repeated while conducting the rest of the writings three months after the previous one.

Data Coding

All the essays were collected for analysis. Traditionally spelling errors in Chinese are specified as misspelling (cuo zi) and substitution (bie zi) (Zhu, 1988). Misspelling means the target character that is spelled incorrectly. Substitution indicates another character that is substituted for the target character. Such substitutions can only be detected in a writing context (Shen and Bear, 1997). These invented spelling errors are subjected to analysis in this study.

Errors that are commonly made in students' writing were categorized by a group of judges consisting of the researcher and three Chinese teachers. Categorized errors were examined by judges independently and then as a group. The discussion of the group

addressed any disagreement in the errors categorized or description of specific errors. When a consensus of errors was reached then each judge was given a list of errors specifically described while analyzing students' essays. The judges independently coded the errors made by the subjects in the writing. The judges then met with the researcher to discuss any discrepancy on the errors identified until a consensus was reached. While identifying invented errors, judges counted characters, words, sentences and paragraphs used in writing.

Results and Discussions

This paper will first discuss students' writing ability through a quantitative analysis of data as in words, sentences and paragraphs employed at different stages. It will then deal with error analysis, that is, substitutions for unknown words were analyzed statistically in order to identify students' orthographic knowledge and a trend of using it in writing. Finally the paper will analyze students' writing process based on the researcher's observations in relation to classroom application and curriculum in literacy education.

Writing Development

Table 1. Data on Students' Writing (Mean)

GRADE	TIME OF VISITS	N0.OF CHARACTERS	N0. OF WORDS	N0. OF SENTENCES	N0. OF PARAGRAPHS
ONE	1st	18.76	7.92	0.96	0.1
	2nd	26.68	9	1.7	0.28
	3rd	44.8	12.47	3.2	0.54
	4th	54.12	16.74	4.68	0.63
TWO	1st	85.83	18	6.78	1.42
	2nd	104.66	20.06	6.32	1.46
	3rd	129.46	25.55	8.19	1.67
	4th	149.42	27.85	9.79	1.84
THREE	1st	160.38	29.54	9.22	2.14
	2nd	164.52	31	10.58	2.83
	3rd	183.02	36.21	14.1	2.37
	4th	195.86	38.27	16.98	2.52
FOUR	1st	196.91	42.81	17.88	2.65
	2nd	193.09	54	18.23	2.92
	3rd	219.17	67.89	19.71	3.37
	4th	225.11	69.25	21.29	3.55
FIVE	1st	246.28	68.1	22.69	3.63
	2nd	271.07	71.72	23.11	3.07
	3rd	283.43	78.47	26.56	3.66
	4th	337.59	86.98	28.54	3.84
SIX	1st	256.82	91.91	25.27	3.8
	2nd	309.97	92.57	26.77	3.84
	3rd	346.35	105.33	30.59	4.33
	4th	400.4	116.62	32.5	5.09

Table 1 presents the information on students' writings tallied by grade level in using characters, words, sentences and paragraphs at each visit. The examination provides a comparison of students' writing at different time intervals within a one-year period. Specifically, grade one started with 19 characters and ended with 54, increasing nearly three times. The number of words used in the final writing doubled that of the first time. The result shows the first grade completed only one full sentence in the initial writing. Yet sentence completion reached four and a half with indication of a paragraph in their final writing. Grade two also showed a tremendous progress during the entire year. Characters used in the initial writing were eighty-six but increased to one hundred fifty (75%) at the final

one. The use of words increased by 55% (18: 28) and sentence completion increased by 100%. Paragraph completion showed a dramatic change starting from the second grade (1.42) compared with the first grade (0.1). The second graders completed nearly two paragraphs at the end of the year.

In general, data presented by Table 1 show a dramatic increase in first and second grades and then a stead development in language skills from grade three through grade six. A huge difference is identified in employing words, sentences and paragraphs in final writings between grades as shown in Table 2. For example, grade three had 38 words used in their final writing while grade four used 69, showing an eighty-two percent increase. From 4th grade (69) to 5th grade (87) there was a twenty-six percent increase and a thirty-three percent increase from 5th grade (87) to 6th grade (116).

Table 2. An Examination of the Final Writing by Groups

GRADE	N0.OF CHARACTERS	N0. OF WORDS	N0. OF SENTENCES	N0. OF PARAGRAPH
One	54.12	16.74	4.68	0.63
Two	149.42	27.85	9.79	1.84
Three	195.86	38.27	16.98	2.52
Four	225.11	69.25	21.29	3.55
Five	337.59	86.98	28.54	3.54
Six	400.4	116.62	32.5	5.09

A comparison of writings at different intervals also indicates a trend of steady increase in using characters, words, sentences and paragraphs by all groups. This indication demonstrates a natural growth of language ability during the three-month interval.

Invented Errors and Orthographic Knowledge in Writing

Students' writing process is discussed through error analysis approach. Categorized spelling errors are analyzed to demonstrate the process of using orthographic knowledge in solving problems in writing. The discussion starts with error types that students created to replace unknown words during writing and demonstrates how these invented errors reflect phonological, graphemic and semantic strategies that students used to help them construct meaning. Table 3 lists examples of identified error types that frequently occurred in writing.

Table 3. Identified Error Types

No	ERROR TYPE	ABBREV	EXPLANATION
1	Pinyin Substitution	PY	using Chinese phonetics, Pinyin as substitution
2	Drawing Substitution	DR	using drawing as substitution
3	Sign Substitution	SN	using sign or symbol as substitution
4	Homophonic Character Substitution	HP	using character with similar sound as substitution
5	Phonetic Radical Substitution	PR	using part of the character to substitute the character
6	Change in Configuration	CC	changing the shape of a character
7	Irrelevant Synonyms	IS	Using a synonym grammatical incorrect

Three types of errors collected through writing samples have shown similar trends. These invented errors include Homophonic Character Substitution (HP), using character with similar sound as substitution, Addition of a Stroke (AS), mean that a stroke or strokes are added to a character, and Deletion of a Stroke (DS), that is, a stroke is deleted from a character.

There is a pattern of students using a character with similar sound to substitute an unknown character. The first graders seldom "created" such errors because of obvious reasons--not knowing enough homophones. Sixth graders show a big drop in such

substitutions though they still used them. The middle graders were the ones who frequently created PH errors. It is apparent that the middle graders had the knowledge of many homophones but they were not capable of distinguishing them. Since the 2nd and 3rd graders knew only a limited number of characters, they depended heavily on phonological knowledge. Such substitutions showed that they were using phonological processing skills as strategies to express themselves in writing, sometimes unaware of syntactical and thematic context.

Phonetic Radical Substitution (PR) is type of error in which part of the character was used to substitute the entire character. This substitution indicates that students used their knowledge of the graphic structure of the character. Semantic knowledge can be identified through error type of Irrelevant Synonyms (IS). In this incident, students used in writing a synonym that is grammatical incorrect in writing. These two types of errors are characterized by the same developmental trend, starting at the second grade and reaching the height in the fourth grade and experiencing a drop in the middle of fifth grade. This provides strong evidence that students used graphic and semantic knowledge of characters they had developed throughout the grade levels. This result indicates that logographic readers, such as Chinese, have a direct access to meaning from the visual configuration of a character. Logographic readers can consequently read without going through a phonological recoding process.

The next category is characterized by a linear (negative) trend; for example, the lower graders frequently use Pinyin substitutions in their writing, especially in grade one. Grade two shows a slow decrease while a sharp drop starts in the third grade. Unlike the other two types of errors in this category, Pinyin substitution is used till the end of fifth grade though it is not as frequently used as in early grades. It is obvious that students' phonetics training, considered as learning of Pinyin, helps them acquire the knowledge they need to sound out any unknown characters by using Pinyin substitutions.

Both errors, Drawing Substitution and Sign Substitution (SN) are shown as a linear tendency, that is, they are common in the first grade writings and witness less in the second grade writings. It shows no evidence that the third graders above still employ these types of substitutions.

Change in Configuration (CC) is recognized as a type of unique invention of students in their writing. Students changed the shape of a character being used in their writing. Such shape changing includes top to bottom, left to right. However, shape-changing is an obvious incident in recognizing Chinese characters. Along with the development of recognizing the shapes of characters, students become sensitive and cautious in using them. The data show that at the end of the second grade, such irregular shape-changing errors almost disappeared. Contrary to CC, Irrelevant Synonym (IS) was not found until the end of second grade. The most frequency of this type was identified between the forth and fifth grades and a decrease began in the middle of fifth grade.

Since students were encouraged to use substitutions for unknown characters, this gave them opportunities of applying their knowledge in phonology, semantics, and grapheme. The process of creating substitutions, identified as errors to replace unknown words, reveals that students were using phonological, graphemic and semantic strategies in solving writing problems.

In sum, error substitutions indicate subjects' knowledge in phonology, semantics, and grapheme. Examining the process of substituting of unknown words by young writers provides a clue that leads to categorization of errors, identified as invented spellings. The substitutions for unknown words can be categorized as phonological, graphemic and semantic strategies that students used in solving writing problems in support of Shen and Bear's categorizations (1997). The strategic process of using phonological, semantic, and graphemic knowledge by the children in writing demonstrates the similarity of readers using language-

based and text-based strategies in solving reading problems while dealing with difficult texts (Feng & Makhtari, 1998). For example, Pinyin substitutions and Homophonic substitutions demonstrate the knowledge of students in phonological strategies.

Though students relied heavily on phonological knowledge in earlier grades, Homophonic strategies were employed in most of the grade levels. Graphemic process reveals a complexity of students' knowledge in Chinese orthography. For example, Drawing substitutions (DR) and Sign substitutions (SN) are identified by a linear tendency, that is, they were common in the first grade writings and became less frequent in the second grade writing. Change in Configuration (CC), was found frequently used in grade one and two writings but seldom seen in writings by the higher graders. Phonetic Radical Substitution (PR) indicates a developmental trend in using knowledge of the graphic structure of characters throughout the grades except grade one. Semantic knowledge is typically represented by the error type of Irrelevant Synonyms (IS). In this incident, students used in their writing a synonym that is grammatically incorrect in writing. The observation indicates that students used semantic knowledge of characters developed previously in later writing.

Conclusion and Implications

Major Characteristics Demonstrated in Writing

Grade One. Pinyin was the major tool used in expressing their oral vocabulary while drawings and signs were used to express ideas beyond their vocabulary. There was a strong reflection of the contents that had been covered in the classroom. Though some immediate personal experiences expressed in writing, reciting from the texts was very common. Some writings were basically copies of texts, such as poems, which were not collected for the study.

Grade Two. Contents included more personal experience, such as family and friends while writings demonstrated the use of punctuations to separate ideas. Pinyin and drawing were still seen but less than 10% of the entire writings. There was an obvious misuse of paragraphs, that is, ideas were not complete and some times more than two unrelated incidents were included. The writers might have found nothing else to say about the story and then started another topic if there was still time left.

Grade Three. Writings were characterized by frequent use of longer sentences and occasional use of compound and complex sentence structures. There was an indication of a beginning and an ending of the story in writing. Personal stories and experiences were narrated within paragraphs, showing very few reciting of texts. Substitutions with wrong words were obvious while Pinyin and drawing substitutions were dramatically reduced.

Grade Four. Narration was appropriately employed in telling personal stories and experiences. An essay structure with an introduction, body and ending was demonstrated and paragraphs were comparatively complete showing a clear mind of the writer. A smooth conversation between characters appeared in the story. In some writings, descriptive methods were used to present a detailed story.

Grade Five. Students seemed comfortable in narration and their contents presented more varieties, such as a thing, an event, and a person. The discussion of the contents supported the topic or the title given. Critical thinking is involved in discussing abstract ideas and using comparison and contrast. Writers attempt to make a point or send a message, not just simply narrating or describing. Figurative and humorous language can be seen in describing details with colorful words and idioms.

Grade Six. Sixth graders did not show much difference from fifth graders in writing styles and thinking process. Yet six graders demonstrated the completeness and cohesiveness of ideas while narrating or describing. Students showed their maturity in discussing ideas by using comparison and contrast, cause/effect and problem/solution. Writers were able to

analyze an idea through different aspects in order to make a point. Writer's mood, attitude and personal feelings could be identified between the lines.

Observations

The researcher has several observations of students' performance throughout the project. Due to the cooperation and high retention rate of the participants, the study was able to collect 90 percent of the valid writing samples from the participants who had attended all four writing sessions throughout the year.

Familiarity plays an important role in composing ideas. Students tended to write more while describing a familiar topic, such as, describing a friend, a family member, an event, etc. Writings with a familiar topic demonstrate the depth of a description of the author's observation and creation. This was true even in some writings by the first and second grades. Language did not seem a problem expressing the writer's mind. Of course, substitutions for unknown words played an important role in writings by lower graders.

The strategies of recalling and reciting texts play an important role in composing. Classroom learning was obviously reflected in writing. Some writings included an entire text learned, such as a poem. This type of recitation was simply a copy of a text. Frequency plays an important role in acquiring Chinese characters. Role memorization is considered a popular way of learning Chinese accordingly. Learners use the strategies of role memorization and repetition to learn thousands of characters. Yet such a strategy did not help students accurately express what they knew and how they expressed themselves in their own language. Therefore, writings showing copying or reciting texts were excluded from research samples.

Lack of creation and critical thinking is a common issue found in students' writings. Creative writing seemed a difficult task in many aspects. Students were observed with a slow start and it took time for some students to start writing. Students were not quite comfortable for creative writing because they were usually given a topic, with a specific format, or by following a particular model in their writing class. It is obvious that even the fifth and sixth graders were still not quite freely expressing themselves. They tended to employ contents, formats, styles, and moods learned from textbooks. Some writings were just the reflections of somebody else's mind rather than the author's own. There was a common pattern that was frequently shared by students at higher grades, that is, one thing is always the consequence of another as a way of delivering a massage or a lesson. It goes like this: "I" did something which was not supposed to do according to somebody (a parent. a teacher) or according to a social morality (being unselfish, for example); "I" learned a lesson and after some self-criticism, "I" changed "my" mind and would do accordingly in the future. This type of writing could not reflect the author's conceptual ability though the interpretation may demonstrate his/her language ability. What we miss here is the real world that the author perceived and the natural process that s/he went through. Although most of the writings by higher graders gave a complete idea, only some were found with creative and/or critical thinking.

Students' writing process has reflected the current curriculum and pedagogy, in which ideas of creativity and critical thinking are not quite emphasized. According to research (Harris, 2008, Ungan, 2013) a curriculum that encourages creativity and nurtures critical thinking has a huge impact on learner's creative potential. A fundamental basis for a literacy program in writing acquisition is to comprise extrinsic factors that facilitate creative development. Writing process is primarily a matter of interpreting rather than copying. It is urgent to have an innovative curriculum with the guidelines and emphases on the ideas of critical thinking and creativity. It is equally important that teachers take a pedagogical initiative in literacy education, which provides opportunities for students to express their

feelings and thoughts freely and creatively. Once creative teaching takes place in the classroom, creative learning and critical thinking will be reflected in students' writing.

Reference:

Ding, G., Peng, D., & Taft, M. The nature of the mental representation of radicals in Chinese: A priming study. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 2004.

Doolan, S. & Miler, D. Generation 1.5 written error patterns: A comparative study. Journal of Second Language Writing, 2012.

Feng, X. & Mokhtari, M. Strategy use by native speakers of Chinese reading easy and difficult texts in English and Chinese. *Asian Journal of English Language Teaching, 1998*.

Hanley, J. R., Tzeng, O., & Huang, H.-S. Learning to read Chinese. In M. Harris & G. Hatano (Eds.), Learning to Read and Write: A Cross-Linguistic Perspective . *Cambridge, England: Cambridge University Press, 1999.*

Harris, V.Applying Research in Creativity and Skill Acquisition in a Community-Based Creative Writing Program: Implications for Teachers and Learners. *Teaching Artist Journal, 2008.*

Lam, H . C .; Ki, W . W .; Chung, A . L . S .; Ko, P . Y .; Lai, A . C . Y .; Lai, S . M . S .; Chou, P . W . Y .; Lau, E . C . C . Original article Designing learning objects that afford learners the experience of important variations in Chinese characters. Journal of Computer Assisted Learning, 2004.

Li, W., Anderson, R. C., Nagy, W. & Zhang, H. Facets of metalinguistic awareness that contribute to Chinese literacy. In W. Li, J. S. Gaffney, & J. L. Packard (Eds.), Chinese Children's Reading Acquisition: Theoretical and Pedagogical Issues. Boston: Kluwer Academic, 2002.

McBride-Chang, C, Shu, H., Zhou, A., Wat, C. P., & Wagner, R. K. *Morphological awareness uniquely predicts young children's Chinese character recognition. Journal of Educational Psychology*, 2003.

Morris, D. The relationship between children's concept of word in text and phoneme awareness in learning to read: A longitudinal study. Research in the Teaching of English, *1993.*

Perfetti, C. A., & Zhang, S. Very early phonological activation in Chinese reading. Journal of Experimental Psychology: Learning, Memory, and Cognition, *1995.*

Shen, H. H. & Bear, D.R. Development of orthographic skills in Chinese children. *Reading and Writing*, 1997.

Shu, H., & Anderson, R. C. Role of radical awareness in the character and word acquisition of Chinese children. Reading Research Quarterly,*1997.*

Wang, M., Perfetti, C. A., and Liu, Y. Alphabetic readers quickly acquire orthographic structure in learning to read *Chinese*. *Scientific Studies of Reading*, 2003.

Templeton, S., & Bear, D. R. A summary and synthesis: "Teaching the lexicon to read and spell." In S. Templeton & D. R. Bear (Eds.), Development of Orthographic Knowledge and the Foundation of Literacy, Hillsdale, NJ: Erbaum, 1992.

Ungan, S. Analysis Of Expression Errors In The Writings Of Primary School Students In Terms Of Certain Variables. *Reading Improvement*, 2008.

Zhu, Z.-R. *The Principles of Elementary Chinese Teaching*. Shanghai: Southeast University Press, 1988.

Zhu, X. Analysis of the cuing function of the phonetic in modern Chinese. Proceedings of the Symposium on Chinese Language and Character, *Beijing, China: Guang Hing Daily Press.*