

PEDAGOGICAL CORRELATES OF READING COMPREHENSION IN ENGLISH AND CHINESE

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Abstract: This study conducted in Hong Kong used multiple regression procedures to investigate the relationship between primary school children's reading test scores and the frequency with which forty-two instructional practices were used by their literacy teachers. Analyses were conducted separately for reading in English language and in Chinese (Modern Standard Written Chinese). Subjects comprised 4,329 Cantonese-speaking students (2,157 girls; 2,172 boys) aged approximately 9+ years, and their 256 teachers (129 teachers of English; 127 teachers of Chinese). Results suggest that no single instructional practice was highly correlated with students' reading achievement in English or Chinese, and in fact some practices demonstrated a negative association. However, certain practices, particularly related to the use and nature of resource materials and to assessment strategies, did demonstrate a positive association with reading performance. Similarities and differences between Chinese and English data are discussed.

Keywords: literacy, teaching reading, reading instruction, reading ESL, reading Chinese, PIRLS

Dutch. Samenvatting. [Translation Tanja Janssen].

In dit onderzoek, uitgevoerd in Hong Kong, zijn multiple regressie analyses gebruikt om de relatie te onderzoeken tussen leesvaardigheidsscores van basisschoolleerlingen en de frequentie waarmee 42 instructievormen werden gebruikt door hun onderwijzers. Er werden aparte analyses uitgevoerd voor het lezen in de Engelse taal en in het Chinees (modern geschreven standaard Chinees). Deelnemers waren 4329 Cantonees sprekende leerlingen (2157 meisjes; 2172 jongens) van ongeveer 9 jaar oud, en hun 256 onderwijzers (129 leraren Engels; 127 leraren Chinees). Resultaten geven aan dat geen enkele instructiepraktijk hoog gecorreleerd was met de leesprestaties van de leerlingen in het Engels of Chinees. Voor sommige praktijken werd een negatief verband gevonden. Bepaalde instructiemethoden, met name methoden die te maken hebben met het gebruik en de aard van bronnenmateriaal en met beoordelingsstrategieën, bleken echter positief gerelateerd aan leesprestaties. Verschillen en overeenkomsten tussen de Chinese en Engelse onderzoeksgegevens worden besproken.

71

Tse, S.K., Lam, J.W.I., Lam, R.Y.H., Loh, E.K.Y., & Westwood, P. (2007). Pedagogical correlates of reading comprehension in English and Chinese.

L1 – Educational Studies in Language and Literature, 7(2), p. 71-91

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French. Résumé [Translation Laurence Pasa]

Cette étude réalisée à Hong Kong utilise des analyses de régression multiple afin d'étudier le lien entre la performance en lecture à l'école primaire et la fréquence avec laquelle 42 pratiques d'enseignement du langage écrit ont été employées par les enseignants. Des analyses distinctes ont été effectuées pour la lecture en Anglais et en Chinois (Chinois écrit standard). La population se compose de 4329 élèves parlant le Cantonais (2157 filles et 2172 garçons) âgés de 9 ans ou plus, et de leurs 256 enseignants (129 professeurs d'Anglais et 127 professeurs de Chinois). Les résultats montrent que, prise isolément, aucune pratique didactique n'est fortement corrélée avec les performances en lecture des écoliers, que ce soit en anglais ou en chinois, et quelques pratiques y sont associées négativement. Cependant, certaines pratiques, plus particulièrement liées à la fonction et à la nature des outils pédagogiques et aux stratégies d'évaluation, sont corrélées de façon positive à la performance en lecture. Les similitudes et les différences entre les données relatives au Chinois et à l'Anglais sont discutées.

Mots-clés: littéracie, enseignement de la lecture, lecture de l'Anglais langue seconde, lecture du Chinois, PIRLSGerman

Portuguese. Resumo [Translation Paulo Feytor Pinto].

Este estudo realizado em Hong Kong recorreu a procedimentos de regressão múltipla para investigar a relação entre a classificação de crianças do primário em testes de leitura e a frequência de utilização, por parte dos professores, de quarenta e duas práticas de ensino. Foram realizadas análises diferentes para a leitura em inglês e em chinês (chinês escrito moderno padrão). Os sujeitos analisados incluíram 4.329 estudantes falantes de cantonense (2.157 raparigas; 2.172 rapazes) com, mais ou menos, 9 anos de idade, e os seus 256 professores (129 professores de Inglês e 127 professores de Chinês). Os resultados sugerem que nenhuma prática de ensino está profundamente relacionada com o sucesso dos alunos na leitura em inglês ou chinês; na realidade, algumas práticas demonstraram uma relação negativa. No entanto, outras práticas, em especial as relacionadas com a utilização e a natureza dos materiais disponíveis e com as estratégias de avaliação, demonstraram uma relação positiva com a competência de leitura. São ainda discutidas as diferenças entre os dados relativos ao inglês e ao chinês.

Palavras-chave: literacia, ensino da leitura, leitura em inglês como segunda língua, leitura em chinês, PIRLS.

Polish. Streszczenie [translation Elżbieta Awramiuk]

W niniejszych badaniach prowadzonych w Hong Kongu użyto wielorakich procedur regresji, aby zbadać relację między wynikami testów czytania dzieci ze szkół podstawowych oraz frekwencją czterdziestu czterech instruktażowych ćwiczeń wykorzystanych przez ich nauczycieli czytania i pisania. Analizy były prowadzone osobno dla czytania w języku angielskim i chińskim (Współczesny Standardowy Chiński Pisany). Badania obejmowały 4,329 studentów mówiących po kantońsku (2,157 dziewcząt; 2,172 chłopców) w wieku od 9 lat wzwyż oraz ich 256 nauczycieli (129 nauczycieli języka angielskiego; 127 nauczycieli języka chińskiego). Rezultaty sugerują, że żadne pojedyncze instruktażowe ćwiczenie nie było silnie skorelowane z osiągnięciami uczniów w czytaniu po angielsku lub chińsku, a niektóre ćwiczenia wykazywały negatywny związek. Jednakże pewne ćwiczenia, szczególnie wiążące się ze sposobem wykorzystywania i charakterem materiałów źródłowych oraz strategiami oceniania, faktycznie wykazywały pozytywną korelację z umiejętnością czytania. Dyskutowane są podobieństwa i różnice między danymi dotyczącymi języka chińskiego i angielskiego.

Słowa-klucze: umiejętność czytania i pisania, nauczanie czytania, ćwiczenie umiejętności czytania, czytanie ESL, czytanie po chińsku, PIRLS

1. INTRODUCTION

Learning to read and write in a native language is generally regarded as a major milestone of achievement for children in primary school. Literacy is regarded as an essential competency for functioning effectively in society; and the ability to read provides an avenue for further learning and advancement in all domains of study. For these reasons, the teaching of reading receives very high priority within the primary school curriculum of most societies.

In Western countries, reading research and the related professional literatures have chiefly addressed ways in which children learn to read and write and the problems or difficulties that can occur for some students (e.g. Allington, 2001; Beimiller, 1994). Reading research has also sought to identify the most effective methods for teaching reading in English-as-first-language contexts (e.g. Adams, 1990; Chall, 1989). In addition, teaching reading to second-language learners (ESL) raises interesting pedagogical issues, and the professional literature on this topic has expanded in recent years (e.g. Hudelson, 2001; Kenner, 2004; Tabors & Snow, 2001). In contrast, rather less has been written about learning to read in first languages other than English.

2. TEACHING READING IN ENGLISH AS FIRST LANGUAGE

Many studies and reviews have attempted to identify pedagogical factors that influence students' progress in reading in English as first language (e.g. Allington, 2002; Ellis, 2005; National Reading Panel, 2000; Rose 2005). The findings suggest that there is no single instructional program, teaching method, or resource material that is effective in teaching *all* children to read; but there is growing evidence that certain classroom practices appear to be more effective than others in fostering children's literacy development.

Morrow, Gambrell and Pressley (2003) have reported in great detail on what they term "best practices" of highly effective teachers of English literacy. In general, their review led to the conclusion that primary school children make optimum progress when reading instruction is "balanced". In this context, "balance" refers to the relative emphasis placed on the explicit teaching of strategies for word identification, decoding and comprehension on the one hand, and on applying these reading skills and strategies for authentic purposes of communication on the other (Hoffman & McCarthy, 2000; Pressley 2002). Recent reports in England and in Australia support fully the notion of a balanced approach to teaching reading, combining skills instruction with reading for meaning and enjoyment (Ellis, 2005; House of Commons Education and Skills Committee, 2005; Rose, 2005).

According to classroom research, the most effective teachers of literacy in English tend to apply the following principles and approaches. First of all, teachers allocate reasonable amounts of time to reading because academic engagement time is one of the most important influences on students' learning (IRA, 2002; Wang, Haertel & Walberg, 1993). They also ensure that children have maximum opportunity to read intensively and frequently in order to practise and apply reading strategies and to develop fluency (IRA 2002; Teale & Yokata, 2000). It is often said that children "learn to read by reading", and sustained practice results in significant advances in literacy development. Effective teachers use a meaning-based and student-centred approach, but they *also* directly teach children the essential knowledge, skills and strategies required for decoding, using context, developing fluency, and comprehension (Gaskins, 1998; Pikulski & Chard, 2005). The "knowledge" component includes letter-to-sound relationships, a sight vocabulary, concepts about books and concepts about print. "Skills" include the essential ability to decode unfamiliar

words into pronounceable parts. “Strategies” are mental plans of action that help a reader decide how best to decode and understand a particular text. According to Mullis, Martin, Gonzalez and Kennedy (2003) these skills and strategies are usually taught to children between second grade and third grade in Western countries. Bernhardt (2001) concludes that the teaching of such strategies is equally applicable to learning to read in a second language.

Effective teachers monitor students’ existing skills and strategies on a regular basis in order to design curricula, select materials, and adapt teaching methods to address the students’ needs. Such assessment may take the form of listening to children read, setting authentic reading tasks, testing children’s understanding, and requiring children to write a response or discuss material they have read. This regular assessment of students’ learning is closely associated with effective literacy programs (Allington, 2002; Harp & Brewer, 2000).

In addition, effective teachers of reading expose children to a wide range of different print genres and the children are not restricted to one particular reading scheme or book series (IRA 2002; Pang, Muaka, Bernhardt & Kamil, 2003). While the teacher still exercises some control over selection of appropriate reading and supplementary materials in the literacy program, choice of books by children themselves is regarded as a very important motivating factor in literacy development (Towle, 2000). Choice of reading material has been shown to lead to deeper engagement in reading activities (Guthrie, 2002).

It must be noted that the practices summarised above relate to the teaching of reading through the English medium by teachers whose own first language is English. Teachers teaching reading in a different first language may display somewhat different classroom practices, as discussed later.

3. LEARNING TO READ IN ENGLISH AS A SECOND LANGUAGE

A balanced approach, with due emphasis on teaching component skills, vocabulary, and comprehension strategies, is also strongly advocated for children learning to read English as a second or foreign language (Birch, 2002). It is argued that ESL children are often at risk in classrooms where word identification skills and reading comprehension strategies are not taught explicitly. Often ESL children’s lack of automaticity with syntax and vocabulary of the second language makes it extremely difficult for them to use the normal contextual cueing systems available to native speakers (Bernhardt, 2001; Tindale, 2003). In addition, the alphabetic coding system used for written English may be unfamiliar to children whose writing system in first language is based on totally different principles — for example, a logographic or ideographic system such as Chinese.

Given the different challenges involved in learning to read in a second language, it is pertinent to wonder whether unique instructional strategies are required, or whether the same teaching principles and approaches apply in both first and second languages. Many authorities in the ESL field have addressed this issue and reached the following conclusions: teaching time must be used effectively and ESL students should have the opportunity to engage in sustained practice with a focus on reading

for meaning and enjoyment. The primary activity of a reading lesson should be reading, not doing grammar or other exercises (Day & Bamford, 2002; Williams, 1986). Hirvela (2004) advocates teaching speaking, reading and writing together from the start in a very integrated way to benefit second language learners. Along similar lines, Hudleson (2001) and Campbell (2002) recommend the use of the language-experience approach for ESL children – an approach in which reading material is generated from the children's own interests and geared to their current oral language competencies. To help ESL learners move beyond an inefficient word-by-word reading approach, Tindale (2003), Farrell (2001) and Janzen (1996) advocate teaching the use of effective contextual strategies. These are best taught through explicit modeling by the teacher and by providing the children with many opportunities for application, reflection, and practice. To encourage students to improve their understanding of text in the second language, whole-class and small group discussions linking what they have just read to their prior knowledge are also strongly recommended (Pang et al., 2003; Strickland, 2000). Day and Bamford (2002) suggest that second-language learners benefit greatly from exposure to a wide variety of reading materials in the second language, and should be able often to choose what they want to read. In the early stages of learning to read in a second language there is a place for using simplified reading materials that control for vocabulary load and sentence length, in order to foster fluency, understanding and confidence (Gee, 1999; Nation & Deweerdt, 2001). Reading aloud by the teacher to the class for brief periods is recommended because it provides a fluent model of reading, with appropriate phrasing and expression (Gee, 1999; Kailani, 1998). Students too should have many opportunities to read aloud to the teacher and to the peer group to develop fluency, correct pronunciation and confidence (Kailani, 1998). Sutherland-Smith (2002) indicates that literacy programs for ESL students should also make good use of new electronic technologies and software.

It can be seen that there is some overlap in the ESL strategies summarised above and the basic principles for teaching reading in English as a first language. There is also reasonable agreement between these recommendations and the spirit of the reforms being implemented now for Chinese language teaching in Hong Kong. However, at the moment it is fairly unusual for teachers in Hong Kong to adopt such a wide range of student-centred and strategic methods, even in the early primary years. The teaching of English, as well as the teaching of Chinese, still tends to be dominated by the use of prescribed textbooks and supplementary exercises.

4. TEACHING READING IN CHINESE: THE HONG KONG CONTEXT

Until relatively recently, the methodology for teaching reading in Chinese language has not shared many of the basic practices or emphases summarized above for teaching reading in English. Traditional Chinese teaching of reading stresses the literary element, with reading material commonly selected from samples of cherished canon of Chinese literature. Canons of literature are selected because the passages combine profound meaning and rich sentiment (Everson, 1994; Wu, Li & Anderson, 1999). The objective of using such passages as reading material is for students to absorb

important values and attitudes (Chen, 1972; Kao, 1991; Tsai, 1986). This traditional model for teaching is not grounded on theoretical or pedagogical issues, but rather reflects cultural traditions and the accumulation of tried and tested approaches.

Teaching of reading in Chinese typically embodies the following features: The teacher is the dominant factor in the lesson and is closely involved in the learning process at all stages (Tse et al., 2005; Wu, Li & Anderson, 1999). Instruction is generally based on class books containing many short passages of classical text. Usually a short thematic passage is central to each exercise, and general questions around the theme are asked as a pre-reading activity. The teacher explains the passage in some detail and then methodically takes students through the material word by word. The teaching process starts with explaining the vocabulary in the passage, then the meaning of sentences and paragraphs, and finally the significance of the whole passage. Students are asked questions about the content at a more searching level. Their performance is assessed on how well they answer the questions. They are assigned vocabulary and sentence structure exercises, or other written work. Close integration of reading and writing is an integral feature of the typical textbook-based reading lessons in Hong Kong primary schools. Chinese teachers prize error-free writing, unlike the approach in the West where students' mistakes are tolerated in the early stages in an effort to encourage personal expression, confidence and fluency. It is hoped that students will learn how to write material of high quality themselves as a consequence of reading and processing passages of classical distinction.

In the 2001 IEA's *Progress in International Reading Literacy Study (PIRLS)* (IEA, 2001) Hong Kong was singled out for its very high reliance on textbooks for the teaching of reading. As one commentator has remarked, "... relying too much on textbooks makes the teaching of reading follow the same pattern. There is often no obvious teaching objective for each lesson, just a concentration on the explanation of texts" (Wong, 2000, p. 309).

It must be noted also that the examples of Chinese literature in the typical textbook tend to be very short passages of a highly figurative nature. Primary school students therefore have few opportunities to read long passages or books with chapters. This limitation can cause some Chinese students to have problems integrating different themes and processing information spread across longer texts (Tse et al., 2005).

The traditional approach to reading and writing instruction as described above is still very much a regular feature of most Chinese language lessons in Hong Kong. However, in recent years – particularly following reforms advocated by the Curriculum Development Council (2002; 2004) – primary schools have been encouraged to adopt additional strategies, approaches and resources for teaching Chinese literacy. The changes include encouraging the use of a wider range of resource materials and exposing students to more age-appropriate and contemporary issues in print. Greater emphasis is also to be put on handing over more responsibility to the learners for monitoring comprehension of what is read and for seeking deeper meaning (Zhu, 2004). The teacher still gives guidance but immerses students much more in real, meaningful reading experiences (Tse et al., 2005). Contemporary reading pedagogy in Chinese language has not, however, turned away from tradition completely. Some of the texts used in lessons are still based on accepted examples of classical litera-

ture that students have been able to cope with in the past. These texts are usually well structured and accommodate the background knowledge of the reader.

Taking into account the similarities and differences between teaching reading in English and in Chinese it is pertinent to wonder how much impact various teaching strategies have on students' reading development in English and Chinese. The purpose of the study described here was to explore the relationship between students' measured achievement in a reading test and the reported frequency with which teachers use specific practices during lesson time. The aim was to discover which practices are associated most strongly with higher student achievement in each language.

5. METHOD

5.1 Participants

In May 2004 the investigators approached schools in Hong Kong that had participated previously in the *Progress in International Reading Literacy Study (PIRLS)* (IEA, 2001). As a result, 66 primary schools agreed to take part in this follow-up study. A total of 4,329 students in Primary Four (P4) classes (2,157 girls; 2,172 boys, aged approximately 9+ years) completed prose-reading tests in both English and Chinese medium. Class size was typically about 30+ students. The children would have spent at least four years studying both Chinese and English as part of the formal school curriculum. Many would also have attended kindergarten and received some basic instruction in both languages at preschool age.

In addition, 256 teachers (129 teachers of English; 127 teachers of Chinese language) completed a questionnaire seeking detailed information about the frequency with which they used specified teaching strategies, implemented particular reading activities, utilized a variety of reading resources, and carried out assessment of students' performance with their P4 classes.

5.2 School Context

In typical primary schools in Hong Kong students are taught English literacy skills by a Cantonese-speaking specialist English language teacher, and Chinese literacy skills are taught by a specialist Chinese language teacher. Very rarely, the same teacher might teach a class both English and Chinese. In recent years, Native English-speaking Teachers (NETs) have been appointed to most schools to help upgrade the teaching of English, but their main concern is with student's listening and speaking skills rather than their reading development.

5.3 Reading Test

The prose reading samples used for testing the students in this study were selected from those applied in the 2001 *Progress in International Reading Literacy Study (PIRLS)* (Mullis, et al., 2003). To assess reading comprehension in relation to two

purposes (reading for information, and reading for literary experience) 8 reading passages were selected, 4 for each reading purpose. Each passage was between 600 to 800 words in length and encompassed a variety of text types (genres). Most passages were in narrative form. The test passages were made available in both English and Chinese languages by translating the original material using Modern Standard Written Chinese (MSWC). The equivalence of the Chinese translation of the English version of the PIRLS 2001 reading comprehension tests were assessed by PIRLS 2001 international team of translators and the different translations were judged to be of equivalent difficulty. To reduce order effects of presentation, a random subset of students took the English reading test first, followed by the Chinese reading test, while the other random subset of students took the Chinese test first followed by the English test.

The reading material and the associated test items were designed to assess students' overall comprehension through a variety of multiple-choice and constructed-response questions. The multiple-choice items were scored 1 or 0 for correct and incorrect responses, and the constructed responses items were scored 0 to 3 depending on the depth of understanding of what had been read, with 3 for deep understanding. Not all students read identical passages, so their scores were scaled using PARSCALE 4, a computer program based on Item Response Theory (Muraki & Bock, 2004). The resulting scores were then comparable irrespective of the passages that students took in the test. The IRT scores were scaled on a continuum ranging from 0 to 800 with a mean of 500 and a standard deviation of 100.

5.4 Teachers' Questionnaire

The teachers' questionnaire contained 42 items relating to specific pedagogical practices associated closely with current beliefs about effective literacy teaching. Table 1 and Table 3 indicate the 42 items covered in the teachers' questionnaire. The teachers were asked to indicate how often they included the specific practices within their reading programs, using one of four alternative responses: "never or almost never used", "used once or twice a month", "used once or twice a week", "used every day or almost every day".

5.5 Analysis of Data

A standardized regression coefficient (*beta* weight) was calculated to determine which of the 42 specific practices were most closely related to reading achievement. In order to examine the differential effects of teachers' various instructional practices on the reading achievement of their students, a stepwise regression analysis was conducted. Five aspects of teachers' behavior were examined: (i) the frequency with which teachers used different instructional resources such as textbooks, worksheets, computer software (*instructional resources*); (ii) the frequency with which teachers used different reading matter such as poems or long passages of text (*texts and genre*); (iii) the frequency with which teachers used different instructional activities such as teaching students to decode sounds and words in English, reading

aloud, group reading (*instructional activities*); (iv) the frequency with which teachers required students to apply specific reading strategies such as identifying the main ideas in a text passage they have read (*reading strategies*); and (v) the frequency with which teachers used different methods of monitoring students' progress in reading (*assessment methods*).

The dependent variable in the regression analysis was students' reading comprehension as measured by the class average score in the reading test for students taught by each teacher. The independent variables are the five aspects of teachers' classroom practices as specified above. A stepwise regression analysis was conducted, with each of the five steps corresponding to a different regression model; in other words, five regression models were examined. In model 1, it was assumed that reading achievement was determined solely by the *instructional resources* used by the teacher. In model 2, data on *texts and genre* were added to instructional resources to explain reading achievement. In model 3, *instructional activities* were further added; in model 4, *reading strategies* were added; and finally in model 5, *assessment methods* were included in the regression model. The increase in the square of the multiple correlation coefficient (R^2) was used to determine the relative contribution to students' reading achievement of each of the five broad categories of instructional practices described above (see Table 2 and Table 4).

In this study more importance was given to interpreting an *adjusted* R^2 rather than the simple R^2 statistic, because simple R^2 tends to give an inflated measure of goodness of fit for predictors in the stepwise regression analysis through capitalizing on chance factors.

6. RESULTS

Table 1 and Table 3 provide, for Chinese and English teachers respectively, the *beta* weights for each of the 42 instructional practices organised under the five categories. Table 2 and Table 4 then summarize the R^2 and the adjusted R^2 values for each of the five cumulative steps in the regression analysis.

Table 1. Multiple Regression Analysis: Chinese Teachers' Questionnaire ($n = 129$)

Items	Beta	t
<i>Frequency of using specific instructional resources for reading</i>		
a. Textbooks	-.019	-.133
b. Reading series	-.240	-1.448
c. Workbooks or worksheets	-.111	-.801
d. Children's newspapers and/or magazines	-.004	-.023
e. Computer software for reading instruction	-.154	-1.035
f. Reading material on the Internet (Web pages)	.189	1.327
g. A variety of children's books (e.g., novels, collections of stories, non-fiction)	-.368	-2.330*

Items	<i>Beta</i>	<i>t</i>
h. Materials from other subjects	-.188	-1.289
<i>Frequency of using different text types and genres</i>		
a. Fables and fairy tales	.097	.617
b. Other stories (fiction)	.090	.516
c. Longer books with chapters (fiction)	.228	1.390
d. Poems	.169	1.082
e. Plays	.127	.853
f. Descriptions and explanations about things, people, or events (non-fiction)	-.147	-.925
g. Instructions or manuals about how things work	.200	1.177
h. Charts, diagrams, graphs	-.033	-.208
<i>Frequency of using specific instructional activities</i>		
a. Teacher read aloud to the class	-.191	-1.288
b. Ask students to read aloud to the whole class	.059	.398
c. Ask students to read aloud in small groups or pairs	-.026	-.159
d. Ask students to read silently on their own	.135	.970
e. Ask students to read along silently while other students read aloud	-.108	-.806
f. Give students time to read books of their own choosing	.005	.041
g. Teach or model for students different reading strategies (e.g., -skimming & self-monitoring)	.073	.521
h. Teach students strategies for decoding sounds and words	.136	.957
i. Teach students new vocabulary systematically	.080	.501
j. Help students understand new vocabulary in texts they are reading	.078	.486
<i>Frequency of requiring students to apply specific reading strategies</i>		
a. Identify the main ideas of what they have read	.007	.040
b. Explain or support their understanding of what they have read	-.205	-1.136
c. Compare what they have read with experiences they have had	.041	.206
d. Compare what they have read with other things they have read	-.013	-.072
e. Make predictions about what will happen next in the text they are reading	-.084	-.477
f. Make generalizations and draw inferences based on what they have read	-.045	-.224
g. Describe the style or structure of the text they have read	-.114	-.639
<i>Frequency of using specific methods of assessment</i>		
a. Multiple-choice questions on material read	-.076	-.452
b. Short-answer written questions on material read	-.154	-.829
c. Paragraph-length written responses about what students have read	.276	1.611
d. Listening to students read aloud	.225	1.293
e. Determining oral reading accuracy	-.124	-.749
f. Oral questioning of students	-.073	-.402
g. Students give an oral summary/report of what they have read	.178	.974
h. Meeting with students to discuss what they have been reading and work they have done	-.032	-.196
i. Project work	.251	1.563

Following Cohen (1988), only those *beta* weights above .200 are of interest here. Inspection of the *beta* weights in table 1 for the teachers of Chinese reveals that under the category *texts and genre* the frequent use of longer books with chapters, and the reading of material such as instruction handbooks or manuals, were both positively related to students' higher reading achievement. This may be because the subject matter in such material serves as a good motivation for learning and may enhance comprehension skills. Under the category *methods of assessment* the frequent use of project work, extended written responses from students related to what has been read, and teacher monitoring students' progress by regularly listening to them read aloud are all positively associated with higher reading achievement. What is surprising in Table 1 is the finding that using a wide variety of children's books is negatively correlated with reading achievement. Perhaps some of the material may be above the reading ability level of some students, and they may select such books simply to "look at" rather than to read carefully. Also of interest is the finding that of the seven teaching practices associated with encouraging students to apply specific reading strategies, five of the practices are negatively associated with reading achievement scores. Possible reasons for this are discussed later.

Table 2. Stepwise Regression Analysis for Predicting Chinese Reading Achievement

Model	R	R ²	Adjusted R ²	Change in adjusted R ²
1	.315	.099	.020	----
2	.509	.259	.116	.096
3	.582	.339	.104	-.012
4	.606	.368	.052	-.052
5	.693	.481	.098	.046

Model 1: Chinese reading achievement = teachers' frequent use of specific instructional resources

Model 2: Chinese reading achievement = teachers' use of instructional resources + use of different texts and genres

Model 3: Chinese reading achievement = teachers' use of instructional resources + use of different texts and genres + specific instructional activities

Model 4: Chinese reading achievement = teacher's use of instructional resources + use of different texts and genres + instructional activities + reading strategies

Model 5: Chinese reading achievement = teacher's use of instructional resources + use of texts and genres + instructional activities + reading strategies + assessment methods

For reading achievement in Chinese, the adjusted R² at step 1 indicated that differences in the frequency with which teachers used a wide range of "instructional resources" accounted only for 2% of the differences in class averages on Chinese

reading test scores. When frequency of using “*texts and genre*” data were added to the model at step 2 there was a significant increase (10%) in the percentage of variance explained, as indicated by the change in adjusted R^2 . There was no improvement of fit achieved by adding frequency of “*instructional activities*” or frequency of encouraging use of “*reading strategies*”. However, at the fifth step, there was an improvement of fit when data on frequency of using various “*assessment methods*” were included in the regression. These results suggest that it was neither *instructional resources* alone, nor used in combination with *instructional activities* and *reading strategies*, that determined the reading achievement of the students — but rather it was *reading resources* (that is, the actual materials children use for frequent application and practice purposes) together with effective *methods of assessment* that were central to explaining the effects of instructional practices on students’ reading achievements in Chinese.

Table 3 provides the *beta* weights for the forty-two variables listed in the English teachers’ questionnaire. Similar analyses were performed as for the Chinese teachers’ data. The dependent variable was the average performance in English reading literacy of the class taught by the teacher. The independent variables are the 42 specific practices contained in the teacher questionnaire.

Table 3. Multiple Regression Analysis: English Teachers’ Questionnaire ($n = 127$)

Items	Beta	<i>t</i>
<i>Frequency of using specific instructional resources for reading</i>		
a. Textbooks	-.058	-.478
b. Reading series	.131	1.212
c. Workbooks or worksheets	-.060	-.511
d. Children’s newspapers and/or magazines	-.030	-.217
e. Computer software for reading instruction	-.056	-.410
f. Reading material on the Internet (Web pages)	-.058	-.411
g. A variety of children’s books (e.g., novels, collections of stories, non-fiction)	-.014	-.118
h. Materials from other subjects	-.290	-2.301*
<i>Frequency of using different text types and genres</i>		
a. Fables and fairy tales	.195	1.557
b. Other stories (fiction)	-.182	-1.445
c. Longer books with chapters (fiction)	.149	1.183
d. Poems	.132	1.059
e. Plays	-.082	-.673
f. Descriptions and explanations about things, people, or events (non-fiction)	.066	.413
g. Instructions or manuals about how things work	.227	1.333
h. Charts, diagrams, graphs	.185	1.079

Items	Beta	t
<i>Frequency of using specific instructional activities</i>		
a. Read aloud to the class	-.106	-.552
b. Ask students to read aloud to the whole class	.082	.515
c. Ask students to read aloud in small groups or pairs	.073	.573
d. Ask students to read silently on their own	.005	.042
e. Ask students to read along silently while other students read aloud	-.105	-.828
f. Give students time to read books of their own choosing	-.085	-.766
g. Teach or model for students different reading strategies (e.g., scanning, self-monitoring)	-.009	-.067
h. Teach students strategies for decoding sounds and words	-.084	-.595
i. Teach students new vocabulary systematically	-.100	-.656
j. Help students understand new vocabulary in texts they are reading	.254	1.761
<i>Frequency of requiring students to apply specific reading strategies</i>		
a. Identify the main ideas of what they have read	-.080	-.534
b. Explain or support their understanding of what they have read	-.477	-2.933*
c. Compare what they have read with experiences they have had	.036	.207
d. Compare what they have read with other things they have read	.234	1.421
e. Make predictions about what will happen next in the text they are reading	.094	.460
f. Make generalizations and draw inferences based on what they have read	-.323	-1.558
g. Describe the style or structure of the text they have read	.025	.165
<i>Frequency of using specific methods of assessment</i>		
a. Multiple-choice questions on material read	-.055	-.378
b. Short-answer written questions on material read	.026	.149
c. Paragraph-length written responses about what students have read	-.119	-.684
d. Listening to students read aloud	.298	1.850
e. Determining oral reading accuracy	-.243	-1.880
f. Oral questioning of students	.138	1.022
g. Students give an oral summary/report of what they have read	.068	.456
h. Meeting with students to discuss what they have been reading and work they have done	.034	.250
i. Project work	.194	1.470

Examining the *beta* weightings of .200 and above in Table 3 indicates that for reading achievement in English, as for Chinese, the frequent use of practical handbooks and manuals was helpful for developing reading skills (*beta* of .227). It also appears useful when teachers help students understand new vocabulary in what they are reading (*beta* of .254) and when they help students compare information and concepts across texts (*beta* of .234). As in the case of Chinese teachers, the strategy of checking (assessing) students' reading by listening to them read aloud is positively associated with higher reading achievement (*beta* of .298). In developing reading

skills in English, many of the conventional reading tasks were found to be counter productive in promoting higher achievement. For example, frequently requiring students to explain or support their understanding of what they read (*beta* of $-.477$) and making generalizations from what has been read (*beta* of $-.323$) were not associated with higher achievement. The practice of determining oral reading accuracy was also negatively associated with reading achievement (*beta* of $-.243$), as was the use of reading materials from other subjects (*beta* of $-.290$).

Table 4. Stepwise Regression Analysis for Predicting English Reading Achievement

Model	<i>R</i>	<i>R</i> ²	Adjusted <i>R</i> ²	Change in adjusted <i>R</i> ²
1	.285	.081	.013	----
2	.523	.274	.157	.144
3	.591	.349	.159	.002
4	.683	.466	.251	.092
5	.725	.525	.252	.001

Model 1: English reading achievement = teachers' use of instructional resources

Model 2: English reading achievement = teachers' use of instructional resources + use of different texts and genres

Model 3: English reading achievement = teachers' use of instructional resources + use of different texts and genres + instructional activities

Model 4: English reading achievement = teacher's use of instructional resources + use of different texts and genres + instructional activities + reading strategies

Model 5: English reading achievement = teacher's use of instructional resources + use of different texts and genres + instructional activities + reading strategies + assessment methods

The analysis of the predictors for reading achievement in English displayed some similarity with the Chinese reading predictors. Again, at step 2 it was the difference in reading materials given to students (*different texts and genres*) when added to the *instructional resources* that was important in explaining variance in the English reading achievement of students (14.4 % increase of *adjusted R*²). However, unlike the Chinese teacher sample, the other important aspect for reading in English was devoting time to the application of specific reading strategies (9.2% increase of *adjusted R*²).

7. DISCUSSION

The data here on teachers' practices indicate that no single instructional practice has any dramatic impact on students' reading test achievement. Inspection of the *beta* weights in Table 1 and Table 3 indicates that in general a very high percentage of the teaching practices, *when viewed in isolation*, have a fairly weak or neutral effect as predictors of students' reading achievement. This finding applies equally to the

Chinese and English samples. In some cases, the association between a predictor variable and reading achievement is actually negative, suggesting that frequent use of that particular practice is not helpful in advancing students' reading ability. In the Chinese sample only five out of forty-two classroom practices yielded positive *beta* weights of .200 or above. In the English sample only four of the practices met this criterion.

The practices that do seem to have a positive effect on reading in the Chinese sample included frequently encouraging students to read longer books with chapters (*beta* of .228) and reading practical handbooks and manuals about how things work (*beta* .200). In the case of longer books, it is probable that they produce the benefit of sustained attention and abundant practice, both of which are known to enhance learning (Pang et al., 2003; Teale & Yokata 2000). Rather than providing short extracts and exercises in a fairly fragmented manner, longer books provide an opportunity for students to read more deeply into a topic or narrative. If the subject matter is intrinsically interesting the reader is likely to devote more time and effort to applying and enhancing reading skills (Day & Bamford, 2002; Williams, 1986). In the case of the practical manuals, it may be that they help students' improve their reading comprehension because they present information clearly in a logical sequence, and they often require the reader to make active responses. The use of such material appeared to be helpful in both Chinese and English reading contexts. For ESL readers, the fact that handbooks and manuals present information in a simple way (and often with the support of illustrations or diagrams) may be particularly beneficial (Nation & Deweerdt, 2001). It is also interesting to note that the use of "project work" as a method of assessing students' ability to apply Chinese literacy skills is also positively associated with reading achievement (*beta* value of .251). In the English sample project work yielded a positive *beta* weight of .194. Project work, regardless of whether it is used for assessment or enrichment purposes, tends to be motivating for students, and encourages independent application of a range of important reading and writing skills for authentic goals.

Positively related to reading achievement in Chinese and English was the assessment practice of listening to children read aloud. Listening to children read is one of the most valuable ways of monitoring students' progress at an individual level. It serves a semi-diagnostic function by enabling the teacher to detect strengths and weaknesses in student's word attack skills, fluency and expression (Westwood, 2006). Individual assistance can then be directed toward improvement where necessary. Reading aloud is also supported as a valuable teaching activity in its own right to help children develop fluency, pronunciation and confidence (Kailani, 1998).

The importance of effective assessment in teaching of reading has been identified in the literature (e.g. Allington 2002; Harp & Brewer 2000; IRA 2002) and it is not surprising that adding the category "assessment methods" at step 5 improved the overall prediction power in the regression analysis for the Chinese sample. What is surprising is the fact that it did not have the same effect in the English sample. Indeed, in the English sample one particular assessment practice — determining oral reading accuracy — was negatively associated with reading achievement (*beta* weight of -.243). This is possibly an indication that if teachers of ESL learners moni-

tor and correct students' errors too frequently when they are reading aloud this could have a detrimental impact on confidence and motivation.

In terms of the other practices that yielded negative *beta* weights beyond $-.200$, Table 1 indicates, surprisingly, that using a wide variety of children's books in Chinese language is negatively correlated with reading achievement. This is contrary to the advice generally given in much of the methodology literature, where using a wide variety of resources is strongly advocated for both native language and second language learning (e.g. Day & Bamford, 2002; Strickland 2000). It could be that using a variety of different resources might expose weaker readers or beginning readers too often to texts that are difficult in terms of readability level, thus leading to lack of success and avoidance. Boredom and lack of interest may also account for the fact that frequent use of graded reading series is also negatively related to students' reading achievement in this study, although this practice is recommended for ESL learners in the early stages of reading development (Gee, 1999; Nation & Deweerd, 2001). Using reading books with controlled vocabulary and sentence length may be of help to weaker readers or beginners, but such books may be boring for the more competent readers and may do nothing to increase their reading ability.

Also of interest here is the finding that, in the Chinese sample, out of seven teaching practices associated with encouraging students to apply specific reading strategies, five practices are negatively associated with reading achievement scores, and the remaining two show a neutral relationship. Similarly, the data from the English sample reveal two fairly strongly negative practices, four others with neutral effect, and only one strategy with positive effect. Given that strategy training – that is, teaching students a mental plan of action to use when tackling text – is very strongly advocated in reading instruction in native English classes, ESL contexts, and remedial classes (e.g. Bernhardt, 2001; Mullis et al., 2003; Pressley, 1999; Stenson, 2006) it is necessary to consider why time devoted to such practices appears relatively unsuccessful for Chinese students in this study. Perhaps in some cases, a specific strategy identified in the questionnaire may represent a useful within-lesson activity for a specific purpose on a specific day, but its use may not result in overall improvement in reading as tested later using unfamiliar text passages. For example, in both Chinese reading and English reading, requiring students to “explain or support their understanding of what they have read” was negatively associated with reading achievement scores. It could be that using this activity in class to focus on the specific content of a particular text passage is useful within that lesson; but the learning experience from that context may not generalize later to the reading of an unfamiliar passage in a test. Learning to apply a single specific reading strategy may therefore not lead later to a higher reading test score. This same argument applies to most of the practices clustered under the category “reading strategies” – when used alone they probably have no significant impact on *overall* reading achievement. However, when students are required to apply a combination of reading strategies to comprehend and reflect upon text the effect may be cumulative, more powerful, and longer lasting. There is support for this view in the stepwise regression analysis for the English sample where at step 4, when the “reading strategies” category is added, it does help to account for more of the variance in student's reading achievement scores. Another possible reason for the apparent lack of benefit from reading strat-

egy training could be that although many teachers claim to devote time to such instruction the actual time may still not be enough to ensure that students master reading strategies thoroughly and use them independently. It is acknowledged in the literature that strategy training takes much time and effort to achieve the goal of independent application by students (e.g. Pressley & McCormick, 1995; Westwood, 2006). A further possible reason might well be the lack of effective training of these sampled teachers in the teaching of reading in Chinese. For instance, in the present study, it is found that only 10% teachers in Hong Kong have received training in theories of reading, and only 7% have training in remedial teaching of reading. The teachers also expressed that there are insufficient good MSWC textbooks in reading for primary school students (Ho, 1999). The new curriculum for reading was introduced in 2004 (CDC, 2004). Relevant and effective textbooks only became available starting in 2006.

Where other negative associations were found between a specific instructional practice and reading achievement it could be that teachers were devoting too much time to that type of activity to the detriment of a more balanced approach; or it could be that although the allocation of time was appropriate the quality of teaching in that aspect was poor.

In summary, the data suggest that many of the practices used by teachers of reading in both English and Chinese appear to have a fairly similar (and usually weak) effect in both languages. For example, listening to children read aloud, using project work to encourage application of reading skills, and having children read longer and more challenging texts are practices that tend to be associated positively with measures of students' reading comprehension in both languages. On the other hand, some practices such as the teacher reading aloud to the class, and the teacher asking students to explain and support their understanding of text, are not effective in either language. The similarity of results for teaching reading in English and in Chinese might be due to the close similarity in the way teachers actually do teach reading in the two languages, based on a false perception that reading methodology should be identical in both languages.

A few practices did appear to have a differential effect: for example, using graded reading books, teaching new vocabulary, and having students compare what they have just read with other material they have read previously appear to be associated with higher achievement in reading in English. In contrast, requiring students to write longer responses, and providing silent reading practice, appear to be more effective for developing students' reading ability for Chinese texts.

In general, the two regression analyses supported the belief that effective teaching of reading in Chinese and in English requires the orchestrated use of a wide range of resources, strategies, activities and assessment practices. The teachers in this study were always reporting their relative use of a particular practice *within an integrated approach*, not as an exclusive method. Looking for a moment at the simple R^2 rather than the adjusted R^2 in Table 2 and Table 4, it can be seen that as each category of practice is added to the equation, more of the variance is accounted for at each step, suggesting that all five categories of practice do contribute to students' reading achievement. To foster overall growth in reading ability teachers need to combine over time most of the classroom practices represented in the questionnaire.

The negative findings in this study are surprising. It is easy, perhaps, to attribute these findings to possible flaws in the design of the study – but the relatively large sample size, comprising 66 schools, 4,329 students and 256 teachers, suggests that the findings could not be simply explained away on sampling arguments. Nor could flaws in instrumentation explain away the negative findings. The reading comprehension tests and the teacher questionnaires were essentially the same as those used in PIRLS2001. As described by Mullis, Martin, Gonzalez and Kennedy (2003), these instruments were carefully constructed, extensively pilot-tested and were psychometrically sound. Furthermore, the correlations between reading comprehension (in Chinese) and teachers' practices found in this study were essentially similar in size and direction to those found in PIRLS2001, suggesting that findings observed here were replicable. For example, it was observed in this study that "asking students to compare what they have read with other things" was positively correlated with reading comprehension; the same was found in PIRLS. Similarly, it was observed in this study that using multiple-choice items to assess reading comprehension was negatively correlated with reading; the same was found in PIRLS.

The correlations among teachers' practices in this study were also internally consistent. Consider the different methods of assessment described in Table 1. When correlations were calculated between all possible pairs of methods of assessments, the correlations came out in the expected directions. For example, the correlations among "listening to students read aloud", "determining oral reading accuracy", "oral questioning of students" and "students giving oral summary/report of what they have read" were positive and very much higher than the correlations between these "oral" assessment methods and the "non-oral" assessment methods such as multiple-choice questions" and "short answer written questions". The correlations among "oral" assessments ranged from .33 to .55 with a mean correlation of .40 whereas the correlations between "oral" and "non-oral" assessment methods ranged from -.06 to .51 with a mean correlation of .23. In summary, it is difficult not to accept the findings in this study.

8. LIMITATIONS OF THE STUDY

It must be kept in mind that the data obtained from the teachers in this study represented their own self-reported frequency of using each of 42 classroom practices for promoting students' reading skills. The data do not represent objective measures of the *actual* frequency of use of such strategies by the teachers; nor do the data indicate the *quality* of the teaching within each of the specific practices. This study can offer no guarantee that the teachers' reported use of time is an accurate indication of what actually occurs in their classrooms in terms of instructional emphasis or quality. Further research involving direct observation of both Chinese teachers and teachers of English as a second language at work in classrooms would be needed to validate these findings.

Another limitation relates to the statistical procedures used. A problem with regression analysis is that the more predictors one puts into the regression, the more likely one will capitalize on chance factors to produce a good fit. This is a concern

in the regression analysis performed in this study. The sample size is relatively small – 129 teachers of Chinese and 127 teachers of English. Yet to properly examine in detail what type of teacher behavior will have an influence on reading achievement, we have included in the regression analysis 42 different behaviors (8 from instructional resources; 8 from texts and genres; 10 from instructional activities; 7 from reading strategies, and 9 from assessment methods). As a consequence, the simple R^2 may provide an inflated measure of fit. For this reason, we have interpreted more from the adjusted R^2 , which is less sensitive to capitalizing on chance factors based on over-fitting of predictors in the regression analysis. In doing so we may have been over cautious.

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TSE, LAM, LAM, LOH & WESTWOOD

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AUTHORS' NOTE

The authors thank the Research Grant Council of Hong Kong SAR for its support through CERG research grant HKU 7292/03H. Thanks also to the children, their parents, teachers and school principals in the 66 primary schools in Hong Kong for their participation in the project.