Modeling the Effects of Home and Student Factors on Text Comprehension

Qiuying Wang, Oklahoma State University
Ze Wang, University of Missouri
Steven J. Osterlind, University of Missouri

Abstract

This study explored the effects of affective factors and home environments on children's text comprehension from a cultural perspective. About 3,000 British and more than 5,000 Hong Kong fourth grade students participated in the study (data derived from the Progress in International Reading Literacy Study, 2001). The participating students and their parents were administered a number of questionnaires concerning students' home environments, reading self-concept, and attitude toward reading. Students were also assessed in text comprehension. Methodologically, two factors of home environments (Early Home Literacy Activities and Parents' Attitude toward Reading) and two factors of student characteristics (Student's Reading Self-concept and Student's Attitude toward Reading) were modeled factorially, with reading comprehension as the dependent variable. A final model fits the data well, suggesting that students' home environments within their own culture influenced one's text comprehension. However, this influence was indirect and moderated by the student's reading self-concept and attitude toward reading. The findings of this study provide insights on how to improve reading instructions in the Chinese and Western cultures.

Introduction

Focusing education to help children and young adults learn to read is an effort common to most countries. Lost opportunity and consequent deficits in other academic areas, like mathematics, civics, and social and cultural arts, can stem from an inability to read adequately, regardless of the country a child lives in. In an effort to understand more about reading across many countries, the International Association for the Evaluation of Educational Achievement (IEA) has undertaken an investigation of children's reading literacy and the factors associated with its acquisition. IEA's goals are implemented, in part, through the Progress in International Reading Literacy Study (PIRLS[1]) 2001.

PIRLS 2001 focuses on the achievement of young children and identifying what affective experiences they have at home and school that may be associated with learning to read (PIRLS 2001 Database User Guide, p. 2). Affective factors are commonly identified as, but not limited to, reading attitudes, motivation, and reading self-concepts (Kush, Watkins, & Brookhart, 2005). It is held that these indirect and affective components of a child's experience can have a profound influence on their learning how to read (e.g., Bradley, Corwyn, Burchinal, Pipes McAdoo, & Garcia Coll, 2001; MacDonald & Cornwall, 1995; Noble, Farah, & McCandliss, 2006). Further, we know that reading-related affective experiences are different across nations (see Chen, Stevenson, Hayward, & Burgess, 1995; Ogbu, 1981; Wang & Guthrie, 2004).

The purpose of our study was to gain a better understanding of these affective and indirect influences on reading by exploring how they differ across cultures. Two regions of the world, one Western and the other Eastern were selected for the study: Britain and China. The sample from Britain included students from across the island

while the Chinese students came solely from the region of Hong Kong.

Review of the Literature

Reading is a purposeful activity that often involves choice, motivation, and a set of behaviors and attitudes (Guthrie, Wigfield, Metsala, & Cox, 1999; Wigfield & Guthrie, 1997). Ample research evidence suggests that positive attitudes and high motivation are key factors in reading success (Baker, Dreher, & Guthrie, 2000; Snow, Burns, & Griffin, 1998). In fact, a positive attitude toward reading may be among the most important of attributes possessed by a lifelong reader (PIRLS 2001 Database User Guide, p.18).

However, attitude is not without a context for its development. The acquisition of a positive reading attitude and constructive self-concept is certainly influenced by one's cultural experiences. Researchers who explore aspects of literacy between different ethnic heritages have concluded that among Chinese, Japanese, Caucasians, and African Americans, cultural values and beliefs about academic achievement strongly influence their attitudes and behaviors for academic tasks (Chen et al, 1995; Ogbu, 1981; Wang & Guthrie, 2004).

Of course, parents, too, play a fundamental role in transmitting cultural values and beliefs to their children. Baker, Scher, and Mackler (1997) provide empirical evidence that parental encouragement of children's reading is related to the child's attitude toward reading, regardless of socioeconomic status. And, Guthrie and Greaney (1991) suggested that parents who regularly bring their child to a library clearly value literacy, and their beliefs affect the child indirectly through their behaviors.

Children's print-related experiences at home also influence their motivation to learn to read. For instance, research has consistently shown that school-aged children who have more opportunities to engage in literacy-related activities at home have more positive views about reading and engage in more leisure reading. For example, Hansen (1969) investigated the relations between fourth graders' reading attitudes, home experiences, and independent reading. Results showed that the home literacy environment was significantly related to independent reading. Similarly, Rowe (1991) and Rowe & Rowe (1992) studied 5,600 Australian students ranging in age from 5 to 14 years and found that reading activities at home predicted the reading attitudes of children in each age group (5-6, 7-8, 9-11, and 12-14 years), and the magnitude of the direct effect of home reading activity on achievement, mediated by the indirect effect of attitudes, increased with students' age. In a related study, Neuman (1986) maintained that fifth graders' leisure reading habits were related to parental encouragement of reading, even after controlling for gender and socioeconomic status (SES).

Parents' attitude toward reading and home literacy environments clearly vary across cultures. For example, in the Western culture, personal autonomy and self-reliance are valued (Oyserman, Coon, & Kemmelmeier, 2002). This attitude is manifested in having parents who encourage children to pursue their own goals and make their own choices (Chao, 1996; Hui & Triandis, 1986). In traditional Chinese culture, however, the parents' influence is different. Here, individuals are viewed as interdependent (Markus & Kitayama, 1991), and children's conformity to the expectations of their parents and teachers is most valued (Ho, 1986).

These cultural differences, suggested to us the plausible hypothesis that *family academic values* may be a stronger source of

reading motivation for Chinese students, while *individual recognition* may be more robust for the Western students. Moreover, the complicated nature of written Chinese may make parental input in the teaching of literacy different for the Chinese language than it is for Western languages, like English which is a hybrid of Romance and Latin base. Western languages have more regular grapheme-phoneme connections and a less complicated orthography.

Of particular importance to us is the fact that cross-cultural studies indicate that Chinese parents have higher expectations for academic performance and emphasize academic success more highly than do their Western counterparts (Mau, 1997; Stevenson & Lee, 1996). While this finding is significant to our work, more generally, the literature on cultural comparison across countries is relatively sparse. So far as we know, few published studies examine the cultural effects on relationships among student's reading attitude, self-concept, early home literacy activities, and parents' attitude toward reading and text comprehension in different countries. This study will helps to fill in this gap in the literature on reading acquisition.

The Aim of the Study

The aim of this study was to investigate the role of home influences in understanding the commonalties and distinctions in children's reading attitudes and behaviors in relation to text comprehension, and explore cultural effects that may contribute to differences between them. A theoretical structural model is proposed that describes the direct and indirect relationships among early home literacy activities, parents' attitude toward reading, student's reading self-concept, student's attitude toward reading and their reading comprehension for information and for literacy.

Two questions guided our research. They are: (1) Do parental factors affect text comprehension through student characteristics of reading measured by attitude toward reading and reading self-concept? And, (2) Do these relationships vary between Eastern and Western cultures?

Method

Participants

Participants in our study were fourth graders and their parents from two countries: 5,050 from Hong Kong (a Special Administrative Region of China), and 3,156 from England. The data derived from the PIRLS international assessments, year 2001. PIRLS targets fourth graders because typically students at this age (most are 9 and 10 years old) are at an important transition point in their development as proficient readers. Most of the children in the British sample were born in 1990 and 1991 (34 and 66% respectively). Two exceptions were children who were born in 1989 and 1992 respectively. For the Hong Kong sample, the majority of the fourth graders were born in 1990 (12.5%) and 1991 (77.4%), with an additional small percentage of Hong Kong children born between 1986 and 1989, or in 1992 and 1993[2]. About 97% of the students in both country samples reported gender information, with the split between boys and girls at about 50% each.

Measures

Three measuring instruments for study variables were selected from the PIRLS data: the reading test, a required student questionnaire, and a home survey.

Student questionnaire. The PIRLS Student Questionnaire appraises a variety of reading-related aspects of a students' home and school life, including classroom experiences and reading for homework, self-

perceptions, and attitudes toward reading, out-of-school reading habits, computer use, home literacy resources, and basic demographic information. From these PIRLS data, two scales were developed for this study. Each scale is a latent factor assessed with multiple items. The first scale (five items) is a measure of a student's attitude toward reading, and the second scale (three items) is a measure of a student's reading self-concept. The responses were Likert-type coded from 1 to 4 ("Agree a lot," to "Disagree a lot"). Prior to analysis, directionality of responses was addressed with positive statements being reverse coded.

Learning to Read (home) survey. The PIRLS Learning to Read (Home) Survey was completed by each participating student's parents or primary caregivers. This survey investigates child-parent literacy interactions, home literacy resources, parents' reading habits and attitudes, and home-school connections. The original items from the survey were used to develop two scales measuring early home literacy activities and parents' attitude toward reading. Each scale is a latent factor assessed with multiple items. The five items assessing early home literacy activities asked how often the parents or someone else at home did certain activities with the child before she/he began the fourth grade. Parents rated those five items on a three-point scale: often, sometimes, and never or almost never. The scale inquiring into parents' attitude toward reading has five items which were rated on a four-point scale from "Agree a lot" to "Disagree a lot." Prior to the analysis, we reverse coded items as necessary.

PIRLS reading assessment. The PIRLS assessment of reading literacy appraises two reading constructs, regardless of whether the reading is done in or out of a school. They are: (1) reading for literacy experience or enjoyment, and (2) reading to acquire and use information. These tests are equally long. In reading for literacy experience, the PIRLS framework includes literacy texts that represent the types of narrative structures and language usages most common to nine year-old readers. The main form of literacy text used in the assessment is narrative fiction. In reading to acquire and use information, the PIRLS assessment includes both chronologically and logically structured informational texts, some of which incorporated various types of adjunct aids such as charts, pictures, and graphs.

Because the PIRLS is a long test with a very large number of questions covering a broad domain (i.e., reading comprehension), it is not administered in total to each student. Rather, a given examinee takes only a sample of whole test in a matrix sampling design. Matrix sample is a sampling procedure where many short and overlapping sections of the test are given to a large group of examinees. These short test portions are aggregated by test administrators to compose a whole test. As a consequence of the design, individual scores are not directly produced. Other programs employ a similar matrix sampling methodology, including the largest school-based testing program in the United States, National Assessment of Educational Progress (NAEP [cf. http://nces.ed.gov/nationsreportcard/assessed October 13, 2008]).

Still, individual scores can be estimated by use of multiple imputation, or plausible values methodology (see Mislevy, 1991). PIRLS makes use of multiple imputations to estimate individual scores. Because of uncertainty in the imputation process, PIRLS produced five imputed values (labeled "plausible values") for each

student on each measure of reading proficiency. In this study, the first plausible value was used as a measure of a student's reading achievement, consistent with parallel research (cf. Akiba, 2008; Wu, 2005). Two reading achievement scores were used: one that corresponds to each of the two PIRLS content areas, reading to acquire information and reading for literary purpose. The plausible values were divided by 100 so that the standard deviations of the reading scores were close to that of the scale items.

Results

Descriptive Statistics

The means and standard deviations of survey variables used in the study are presented in Table 1. Recall that these values are on a five-point Likert-type scale.

Table 1
Descriptive Statistics for Survey Variables in the British and Hong Kong Samples

	British (N=3,156)		Hong Kong (N=5,050)	
	M	SD	M	SD
Student's attitude toward reading				
I read only if I have to.	2.58	1.16	2.43	1.09
I like talking about books with other people.	2.33	1.04	2.97	0.98
I would be happy if someone gave me a book as a present.	3.21	0.98	3.45	0.85
I think reading is boring.	3.05	1.13	3.13	1.01
I enjoy reading.	3.13	1.09	3.19	0.94
Student's reading self-concept				
Reading is very easy for me.	3.33	0.78	2.97	0.87
I do not read as well as other students in my class.	2.47	1.07	2.59	0.98
Reading aloud is very hard for me.	2.63	1.15	2.55	1.12
Early home literacy activities				
Read books	2.82	0.40	2.10	0.58
Tell stories	2.59	0.57	1.91	0.65
Sing songs	2.65	0.54	1.92	0.67
Play word games	2.32	0.58	1.68	0.60
Read aloud signs and labels	2.54	0.59	1.93	0.69
Parents' attitude toward reading				
I only read if I have to.	3.48	0.90	2.41	1.10
I like talking about books with other people.	2.95	0.96	2.80	0.96
I like to spend my spare time reading.	3.15	0.96	3.43	0.83
I read only if I need information.	3.29	0.99	2.39	1.05
Reading is an important activity in my home.	3.50	0.76	2.94	0.94
Student reading for information	5.43	0.08	5.38	0.06
Student reading for literacy	5.58	0.09	5.18	0.07

Confirmatory Factor Analysis

Multiple group structural equation modeling was applied to address the research questions. Specifically, a two-step modeling procedure was used to assess the measurement and structural models (see Anderson & Gerbing, 1988). In step one, confirmatory factor analysis (CFA) using maximum likelihood estimation was used to evaluate the measurement model for the adequacy of the hypothesized factor structure in each sample. With CFA, researchers are usually interested in exploring how the observed items correlate. Hence, latent factors and their variances and co-variances of observed variables are usually analyzed.

Our initial hypothesized model did not adequately reflect the data, a common finding in models with many variables and with a large sample size. Therefore, we respecified the model by incrementally adding correlated residuals until an acceptable fit was achieved. Co-variances between the four pairs of measure-variable residuals (i.e., playing word games at home versus reading aloud signs and labels at home; parents read if have to versus parents read only if need information; students read if have to versus students think reading is boring; students like talking about books with others versus students like to have books as presents) were added to the model for British students.

For Hong Kong students, the same four pairs of correlated residuals, plus an additional correlation between a pair of measured-variable residuals (students like talking about books with others versus students think reading is boring), were added to the model. Three paths (Early Home Literacy Activities to playing word games; Student's Attitude toward Reading to students like to have books as presents; Student's Attitude toward Reading to students think reading is boring) were constrained to be equal across the two groups, following suggestions by Kline (2005). This respecified model was rerun and several fit indices were calculated.

The chi-square statistic for the model was computed first. The chi-square statistic represents the discrepancy between the unrestricted sample covariance matrix and the restricted covariance matrix. The χ^2 value for the respecified measurement model was significant (χ^2 (252)=1225.42, p<.001) indicating that the observed and specified model differed. Caution is needed when interpreting this finding, however, as a significant chi-square statistic is not uncommon for samples greater than 200, and it does not necessarily reflect a poor fit to the data (Byrne, 2009).

Next, we calculated other, more meaningful fit indicators. We used the comparative fit index (CFI) and the root mean square error of approximation (RMSEA), which are less sensitive to sample size as compared to the chi-square statistic. CFI compares the lack of fit of the hypothesized model with the independent model. The CFI for the modified measurement model was .96, and the RMSEA was .02, indicating a good fit to the data (Hu & Bentler, 1999).

Structural Model Analysis

In step two of our analysis, a structural model was examined to evaluate whether early home literacy activities and parents' attitude toward reading influence student's reading self-concept and attitude, which in turn would have a direct effect on their reading comprehension. It is hypothesized that cultural differences may induce different relationships among our path model. Before analysis, the structural model was modified by constraining the (unstandardized) structural paths to be equal for both groups so as to achieve parsimony. Three structural path constraints (Parents'

Attitude toward Reading to Student's Reading Self-Concept; Student's Reading Self-Concept to Reading for Information; Student's Reading Self-Concept to Reading for Literacy) were later relaxed to have better model fit. The final structural model fit the data acceptably as evidenced by our indicators: χ^2 (327) = 2887.90, p<.001, CFI=.93, RMSEA=.03. Standardized path coefficients for the model are displayed graphically in Figure 1. Significant levels were determined by critical ratios on unstandardized coefficients. All coefficients are significant at .001 level, except for the path Parents' Attitude toward Reading to Student's Reading Self-Concept for the Hong Kong group (p=.22).

Structural Model of the British and Hong Kong Groups

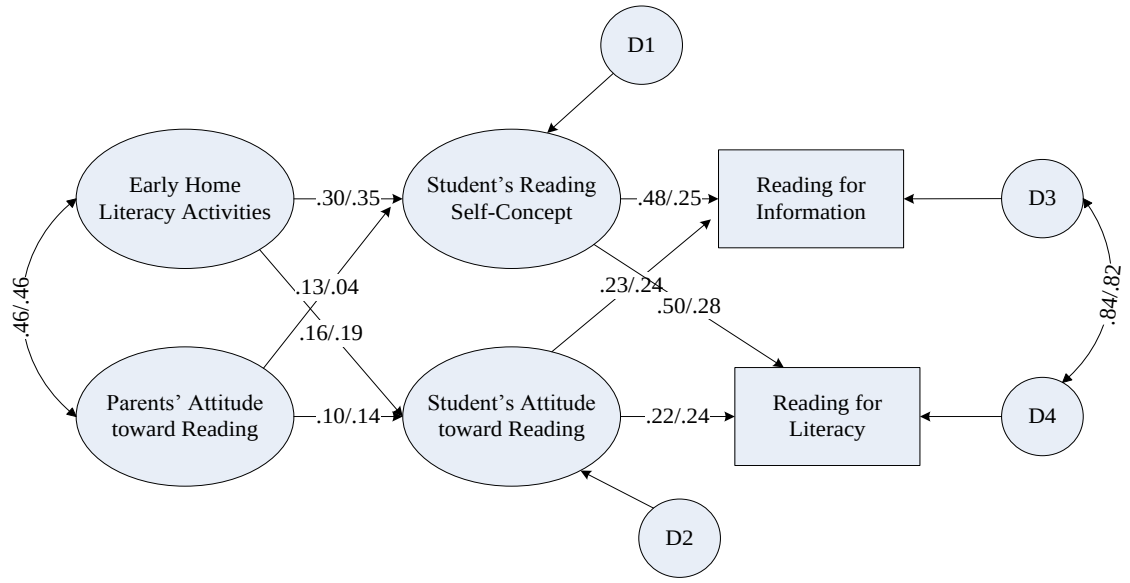

Figure 1. Coefficients for British students are before slashes. For Hong Kong students coefficients are after slashes. Significant levels were determined by critical ratios on standardized coefficients. All coefficients are significant at .001 level, except for the path Parents' Attitude toward Reading→Student's Reading Self-Concept for the Hong Kong group (p=.22).

In both cultures, Early Home Literacy Activities and Parents' Attitude toward Reading were positively correlated (*r* = .46 for Britain and Hong Kong, *p*s<.001). Again, in both cultures, the Early Home Literacy Activities significantly related to Student's Reading Self-Concept (β = .30 for Britain and β = .35 for Hong Kong, *p*s<.001) and Student's Attitude toward Reading (β = .16 for Britain and β = .19 for Hong Kong, *p*s<.001). Similarly, in both cultures, Parents' Attitude toward Reading directly related to Student's Attitude toward Reading (β = .10 for Britain and β = .14 for Hong Kong, *p*s<.001). However, Parents' Attitude toward Reading was only positively related to Student's Reading Self-Concept in British sample (β= .13, *p*<.001), but not in Hong Kong sample. Student's Reading Self-Concept directly predicted their Reading for Information (β = .48 for Britain and β = .25 for Hong Kong, *p*s<.001) and Reading for Literacy (β = .50 for Britain and β = .28 for Hong Kong, *p*s<.001). Student's Attitude

toward Reading significantly predicted their Reading for Information (β = .23 for Britain and β = .24 for Hong Kong, *p*s<.001) and Reading for Literacy purposes (β = .22 for Britain and β = .24 for Hong Kong, *p*s<.001).

Discussion

The purpose of this study was to examine the extent to which students' affective characteristics (reading self-concept and attitude toward reading) and home environments facilitate their text comprehension and the possible role of culture in this relationship. Our findings support the hypothesis that both student's reading self-concept and attitude toward reading adequately predict their comprehension of texts. And early home literacy activities have significant effects on children's development of positive reading self-concept and reading attitudes. In addition, parents' attitude toward reading directly influences their children's reading attitude. Those findings hold in the Western culture as well as the Chinese culture and are consistent with existing literature (Whitehurst & Lonigan, 2001; Yaden, Rowe, & MacGillivray, 2000). Thus, it is concluded that, regardless of culture, students' affective characteristics and home environments influence their acquisition of skills needed for comprehending a text. But, the full picture is more complex.

The effects of home environments on a student's text comprehension were moderated by student's reading self-concept and attitude toward reading. Past research indicates that home influences on children's cognitive and linguistic skills may change over time (Chall, Jacobs, & Baldwin, 1990; Rowe, 1991). As children mature and have developed more stable cognitive skills, the effect of home environments may be subsumed, but the effects of their own cognitive skills and self-judgment will remain salient on their reading comprehension.

It is interesting to notice that Parents' Attitude toward Reading positively influenced Student's Reading Self-Concept in the Western culture (β= .13, *p*<.001) but not in the Chinese culture. In Hong Kong, the PIRLS study was conducted in Chinese which is the mother tongue for the majority of people and used in daily life. The "reading," therefore, refers to Chinese reading. For the British sample, however, the "reading" refers to English reading. Due to differences in the two language (Chinese and English) acquisitions, it could be the case that the development of reading self-concept differs as well. Our study did not delve into this further question, but our work certainly highlights a need for additional exploration here.

In addition, influences from home, as measured by standardized direct effects, are greater in the Chinese culture than in the Western culture when they exist in both cultures. The Chinese culture in Hong Kong values collectivism where family members may bring merit or demerit to the "face" of the family. Experiences from home are likely to be more crucial for Chinese children due to this awareness than for their Western counterparts

However, Student's Reading Self-Concept is a better predictor of reading proficiency in the Western culture. This may be because children in the Western culture have more exposure outside the family and other factors come into play in their development of reading self-concept. As we mentioned earlier, the acquisition of Chinese and English languages likely differ, and the differences in the effect of Student's Reading Self-Concept on reading proficiency between the two cultures may reflect the differences in language acquisitions as well.

The findings of this study provide insights on how to improve reading instructions in the Chinese and Western cultures. For example, teachers can help students establish more positive attitude toward reading and encourage them to have higher reading self-concept since students' text comprehension is directly related to those constructs. Home environments are important in the development of children's reading self-concept and attitude; therefore, the findings also have implications for offering guidance to parents.

It is noteworthy that, during our modeling, the unstandardized direct effects other than those related to Student's Reading Self-Concept were constrained to be the same across the two groups. Furthermore, three unstandardized direct effects related to Student's Reading Self-Concept (Parents' Attitude toward Reading to Student's Reading Self-Concept; Student's Reading Self-Concept to Reading for Information; Student's Reading Self-Concept to Reading for Literacy) were different across the two groups. This suggests that the difference between the British and Hong Kong samples is indeed in student's reading self-concept. With similar amount of home environments, the two groups of students could develop different amount of reading self-concept; but, with similar amount of reading self-concept, the two groups could have different levels of reading comprehension. Future investigation into why this happens could provide added insight toward our understanding of the development of affective factors related to reading comprehension in the two cultures. For example, reading self-concept may relate to other aspects of self-concept differently across cultures even when home influences are similar.

Meanwhile, there is the possibility that the items in PIRLS 2001 measure slightly different constructs in the Western culture than in the Eastern culture. For example, the statement, "I read only if I have to," supposedly measuring attitude toward reading for both parents and children may indicate very different meanings in the Eastern and Western cultures. While it is usually considered as a negative statement indicating less self-control in the Western culture, it is likely to be thought of as a measure of "conformance" in the Chinese culture where conformity is valued more than in Britain or most other Western cultures. We call attention to these measurement differences as such sensitivity may influence explanatory interpretations.

There are several limitations of this study. First among the study limits is that we used secondary data from PIRLS 2001 and this does not allow us to include important variables that are not measured. For example, instruction at school likely influences students' reading proficiency but that variable is not available.

Second, PIRLS were administered in different languages in Hong Kong and the United Kingdom. Constructs related to reading may be different because of the different amount of effort required for language acquisition, different components of the languages, etc. Although translating instruments to different languages is common in cross-cultural studies (Tirri & Campbell, 2010), this may affect the external validity of the study.

Third, the Hong Kong sample in PIRLS 2001 was only representative of fourth graders in this special administrative region of China. Because of the century-long influences from Britain when Hong Kong was a British colony, findings from a Hong Kong population may not be generalized to other regions of China.

Future research may be conducted on exploring other factors that affect student's reading self-concept and proficiency. Those may include cognitive factors such as the

importance put on reading, behavioral measures such as time spent on reading, contextual influences such as school climate, etc. Another line of future research is to investigate whether and how home environment and student's self-concept and attitudes affect second language proficiency. For example, in Hong Kong, English is taught as a second language. Will English reading proficiency be affected by the same factors and in the similar way as Chinese reading proficiency? Will English reading proficiency be affected in a similar way in Hong Kong as in Britain? In addition, future research can focus on understanding the mechanism and process of how home environment influence children's reading self-concept, attitudes, and proficiency. For example, interviews with parents and observations in the family may be conducted to answer relevant questions.

Endnotes

[1] Complete information on PIRLS is available at the U.S. Department of Education, National Center for Education Statistics web site http://nces.ed.gov/Surveys/PIRLS.

[2] Hong Kong was a British colony and became a special administrative region of China on July 1, 1997. The participants in the Hong Kong sample were born before that date and were assessed only four years after the sovereignty handover. The education system in Hong Kong is greatly influenced by that in the United Kingdom, although unlike the UK, the Chinese culture in Hong Kong is low on the cultural value of individualism and high on collectivism. The differences in the two samples can be more readily contributed to differences in cultures than to differences in education systems.

On the other hand, PIRLS 2006 data have been collected and made available to the public. Similar comparisons can be conducted using the newer data between the British sample and the Hong Kong sample.

References

Akiba, M. (2008). Predictors of student fear of school violence: A comparative study of eighth graders in 33 countries. *School Effectiveness and School Improvement, 19*(1), 51-72.

Anderson, J. C., & Gerbing, D. W. (1988). Structural equation modeling in practice: A review and recommended two-step approach. *Psychological Bulletin, 103*(3), 411-423.

Baker, L., Dreher, M. J., & Guthrie, J. T. (2000). Why teachers should promote reading engagement. In L. Baker, M. J. Dreher, & J. T. Guthrie (Eds.), *Engaging young readers: Promoting achievement and motivation* (pp. 1-16). New York, NY: Guilford.

Baker, L., Scher, D., & Mackler, K. (1997). Home and family influences on motivations for reading. *Educational Psychologist, 32*(2), 69-82.

Bradley, R. H., Corwyn, R. F., Burchinal, M., Pipes McAdoo, H., & Garcia Coll, C. (2001). The home environments of children in the United States. *Child Development, 72*(6), 1844–1886.

Byrne, B. M. (2009). *Structural equation modeling with Amos* (2nd ed.). New York, NY: Routledge.

Chall, J. S., Jacobs, V. A., & Baldwin, L. E. (1990). *The reading crisis: Why poor children fall behind*. Cambridge, MA: Harvard University Press.

Chao, R. K. (1996). Chinese and European American mother's beliefs about the role of parenting in children's school success. *Journal of Cross-Cultural Psychology, 27* (4), 403-423.

Chen, C. S., Stevenson, H. W., Hayward, C., & Burgess, S. (1995). Culture and academic achievement: Ethnic and cross-national differences. In M. I. Maehr & P. R. Pintrich (Eds.), *Advances in motivation and achievement* (Vol. 9, pp. 119-151). Greenwich, CT: JAI Press.

Guthrie, J. T., & Greaney, V. (1991). Literacy acts. In R. Barr, M. L. Kamil, P. Mosenthal, & P. D. Pearson (Eds.), *Handbook of reading research* (*Vol. 2*, pp. 68–96). New York, NY: Longman.

Guthrie, J. T., Wigfield, A., Metsala, J., & Cox, K. E. (1999). Predicting text comprehension and reading activity with motivational and cognitive variables. *Scientific Studies of Reading, 3*(3), 231-256.

Hansen, H. S. (1969). The impact of the home literacy environment on reading attitude. *Elementary English, 46*(1), 17-24.

Ho, D. (1986). Chinese patterns of socialization: A critical review. In M. Bond (Ed.), *The Psychology of the Chinese People* (pp. 1-35). Oxford, England: Oxford University Press.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1-55.

Hui, C. H., & Triandis, H. C. (1986). Individualism–collectivism: A study of cross-cultural researchers. *Journal of Cross Cultural Psychology, 17(2),* 225–248.

Kush, J. C., Watkins, M. W., & Brookhart, S. M. (2005). The temporal-interactive influence of reading achievement and reading attitude. *Educational Research and Evaluation, 11*(1), 29-44.

Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). New York, NY: Guilford Press.

MacDonald, G., & Cornwall, A. (1995). The relationship between phonological awareness and reading and spelling achievement eleven years later. *Journal of Learning Disabilities, 28*(8)**,** 523–527.

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98*(2), 224–253.

Mau, W. (1997). Parental influences on the high school student's academic achievement: A comparison of Asian immigrants, Asian Americans, and White Americans. *Psychology in the Schools, 34*(3), 267-277.

Mislevy, R. J. (1991). Randomization-based inference about latent variables from complex samples. *Psychometrika, 56*(2), 177-196.

Neuman, S. B. (1986). The home environment and fifth-grade students' leisure reading. *Elementary School Journal, 86*(3), 335-343.

Noble, K. G., Farah, M. J., & McCandliss, B. M. (2006). Socioeconomic background modulates cognition–achievement relationships in reading. *Cognitive Development, 21*(3)**,** 349–368.

Ogbu, J. U. (1981). Origins of human competence: A cultural-ecological perspective. *Child Development, 52*(2), 413–429.

Oyserman, D., Coon, H., & Kemmelmeier, M. (2002). Rethinking individualism and collectivism: Evaluation of theoretical assumptions and meta-analysis. *Psychological Bulletin, 128*(1), 3–72.

Rowe, K. J. (1991). The influence of reading activity at home on students' attitudes towards reading, classroom attentiveness and reading achievement: An application of structural equation modeling. *British Journal of Educational Psychology, 61*(1), 19–35.

Rowe, K. J., & Rowe, K. S. (1992). The relationship between inattentiveness in the classroom and reading achievement. *Journal of the American Academy of Child and Adolescent Psychiatry, 31*(2), 349–368.

Snow, C. E., Burns, M. S., & Griffin, P. (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academy Press.

Stevenson, H. W., & Lee, S. Y. (1996). The academic achievement of Chinese students. In M. H. Bond (Ed.), *The handbook of Chinese psychology* (pp. 124–142). Hong Kong, China: Oxford University Press.

Tirri, K., & Campbell, J. R. (2010). Current trends and dilemmas in cross-cultural research. In D. K. Sharpes (Ed.), *Handbook on international studies in education* (pp. 17-29). Charlotte, NC: Information Age Publishing.

Wang, J. H., & Guthrie, J. T. (2004). Modeling the effects of intrinsic motivation, extrinsic motivation, amount of reading, and past reading achievement on text comprehension between U.S. and Chinese students. *Reading Research Quarterly, 39*(2), 162-186.

Whitehurst, G. J., & Lonigan, C. J. (2001). Emergent literacy: Development from pre-readers. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of early literacy research* (pp. 11–29). New York, NY: Guilford Press.

Wigfield, A., & Guthrie, J. T. (1997). Relations of children's motivation for reading to the amount and breadth of their reading. *Journal of Educational Psychology, 89*(3), 420-432.

Wu, M. (2005). The role of plausible values in large-scale surveys. *Studies in Educational Evaluation, 31*(2-3), 114-128.

Yaden, D., Rowe, D., & MacGillivray, L. (2000). Emergent literacy: A matter (polyphony) of perspectives. In M. Kamil, P. Mosenthal, P. Pearson, & R. Barr (Eds.), *Handbook of reading research* (pp. 425-454). Mahwah, NJ: Erlbaum.