



Predictors of Literacy Skills among Chinese Preschoolers

Chan Mei Yee, Zarinah Arshat and Rozumah Baharudin

Department of Human Development and Family Studies, Faculty of Human Ecology, Universiti Putra Malaysia, Serdang, 43400, Selangor, D.E. Malaysia.

ARTICLE INFO

Article history:

Received: 19 October 2013;

Received in revised form:
2 December 2013;

Accepted: 11 December 2013;

Keywords

Literacy,
Skills,
Preschoolers,
Variable.

ABSTRACT

This study was designed to determine the predictors of literacy skills among Chinese preschoolers. There were 136 preschoolers aged ranged between three to six years old with their parents and teachers recruited in this study using a Multi-Stage Cluster sampling technique. Home-based learning activities were measured using Home Learning Environment Questionnaire (Lonigan & Farver, 2002). Meanwhile, children's literacy skills were respectively assessed using Test of Early Reading Ability Third Edition (Reid, Hresko, & Hammill, 2001). This study found that preschoolers with higher level of literacy skills were came from families who practiced more home-based learning activities, and have highly educated parents and high family monthly income. Besides that, findings revealed that older children perform high level of literacy skills. The findings of this study imply that home learning was the most significant unique predictor of child's literacy skills within all tested variables.

© 2013 Elixir All rights reserved

Introduction

Malaysia is one of the countries in the world which uses at least two languages in the education system with the English language as an official second language. The Malaysia Education System requires all students in primary and secondary schools to learn Malay and English. Additionally, it is necessary for students to pass the Malay and English papers in every formal examination held by the government in order to continue their studies to the next level. In Malaysia, the local Chinese students are usually trilingual. There are 95% of Chinese parents choose to send their children to Mandarin-medium primary schools to learn their culture (Abidin, Pour-Mohammadi, & Ooi, 2011). However, only 5% of Chinese students continue their studies in Mandarin-medium secondary schools after completing their six years of primary education. This situation may cause many dropouts as the students cannot cope with the medium of instruction. The students who dropout from school would normally start to work immediately in workshops, motorcar-repairs shops and the like. Without diploma or degree certificates, their employment option are limited (Rodriquez, 2010).

As children enrol into formal schooling, they are facing numerous challenges. As such, they need to equip themselves well physically and cognitively to cope with the new challenging situation in school. School teachers have established expectations on children's basic literacy ability. Given this expectation, teachers rigidly conduct their lessons according to a well-structured course syllabus. Unfortunately, children who have poor literacy may struggle with reading and writing in class. Consequently, they tend to receive less practice in reading and less contact with the content of knowledge, vocabulary and other language skills (Cunningham & Stanovich, 1998; Echols, West, Stanovich & Zehr, 1996; Morrison, Smith, & Dow-Ehrensberger, 1995).

Kirsch, Jungelblat, Jenkins, and Kolstad (1993) defined literacy as "using printed and written information to function in society to achieve one's goals and to develop one's knowledge

and potential" (p. 2). Basically, literacy acquisition is a key in leading individuals to expertise in others spheres of life (Snow, Burns, & Griffin, 1998). Once the individual acquire literacy skills, they would gradually acquire other abilities in later development especially cognitive and linguistic abilities. Further, those abilities in early childhood are the foundation for learning and development at later stages (Carlisle, Fleming, & Gudbrandsen, 2000). Previous studies (Lonigan, Allan, & Lerner, 2011; LaCour, McDonald, Thomason, & Tissington, 2009; Lehr, Osborn, & Hiebert, 2004; Baumann, Kane'enui, & Ash, 2003) revealed that well-developed literacy skills early in life strongly correlates with reading comprehension and learning achievement. Relating to these studies, a study on preschoolers' early emergent literacy skills is somewhat important before they enter formal schooling.

Due to the dilemma mentioned above, improving students' literacy skills is considered important to be studied. Possessing good basic literacy skills can enhance the students' later development in their learning process, further, reducing the incidence of school dropouts. Literacy skills should be established in young children at an early age as they begin to develop language abilities, especially in their preschool years. This is because early childhood is viewed as a sensitive period in developing literacy, cognitive and language skills (Morrison & Cooney, 2002).

The predictors that contribute to the development of literacy skills among preschoolers are important to be studied. Literacy skills appear to be shaped by children's and family's characteristics, home environment, child care and early classroom experiences (Morrison & Cooney, 2002). The predictors of literacy skills can be divided into innate and environment factors. Innate factors are defined as the child's personal characteristics such as gender, age, ethnic, religion and birth order (Morrison & Cooney, 2002). On the other hand, physical environment factors are defined as the family's socioeconomic situation, parents' education level, parents' job,

family size, and interaction between parents and children (Lee & Kim, 2012).

Over a decade, the National Assessment of Educational Progress reading comprehension scores from 1992 to 2003 showed that females outperformed males in reading ability (Klecker, 2006). Literacy skills involve two basic processes which are sequential processing refers to the ability of processing information in sequence related to auditory stimulus, whereas simultaneous processing is defined as the ability to integrate parts of information into a meaningful picture which is related to visual stimulus (Below, Skinner, Fearing, & Sorrell, 2010). According to the maturation which happens in males in their early age, they may be increased levels of fetal testosterone which delay the development of left-brain hemisphere (Geschwind & Behan, 1982). As a result, males tend to perform better on tasks which require simultaneous processing but fall behind on tasks requiring sequential processing (Naglieri & Rojahn, 2001; Naour, 2001). Poor performance in sequential processing may affect literacy skills development because pre-reading relates to phonetic decoding (Aaron, 1982). If children are poor in auditory stimulus, their emergent literacy skills would be affected (Chatterji, 2006). Meanwhile, the study by Baroody and Diamond (2011) demonstrated that girls' reading abilities outperformed that of boys because girls are more interested in literacy activities than boys. When children show high level of interest in learning literacy, they have better literacy skills (Alexander, Johnson, Leibham, & Kelley, 2008).

Children from low-income families are experiencing less home literacy activities compared to middle-class and high-income children (Lee & Kim, 2012). Hwang (2005) reported that low-income parents rarely read with their children as they do not know the importance of children's early emergent literacy. Thus, they seldom engage in home literacy activities with their children, further affecting their children's later learning process. Previous studies (Shin & Kim, 2008; Shin, 2007) also found that parent's education level and awareness of the importance of home literacy learning do affect the child's literacy skills development. Moreover, children in poor families seldom attend preschool or kindergarten in their preschool years not just because of having limited awareness about the importance of children's early emergent literacy (Shin & Kim, 2008) but the fees of early emergent literacy learning in kindergarten or language learning centres are costly (Lynch, Anderson, Anderson, & Shapiro, 2006).

In general, researchers and psychologist agree that family especially parents is a significant contributor to children's literacy skills (Bronfenbrenner, 1979) and learning to read and write can emerge naturally in preschoolers when supported by adults (Beaty & Pratt, 2003). Preschoolers will improve if they obtain proper support given during the sensitive period when their early literacy skills first start to emerge. Parent-child reading can be defined as a key for home literacy activity that plays an important role in children's literacy skills development (Scarborough & Dobrich, 1994). Previous researches have revealed a firm relationship between home learning and children's language development, emergent literacy and later school achievement in reading and writing (Lonigan, Allan, & Lerner, 2011; Leseman & Van Tuiji, 2006; Karrass & Braungart-Rieker, 2005; Baker, Mackler, Sonnenschein, & Serpell, 2001; De Jong & Leseman, 2001). Parents who provide a good home learning environment for their child to conduct literacy activities including reading books, name writing with

children and night time storytelling may serve as a model for children in enhancing their reading and writing behaviour (LaCour et. al., 2009; Hoff, 2006; Ravid & Tolchinsky, 2002; Beals, 2001).

As mentioned earlier, literacy acquisition is a key in leading individuals to succeed in later learning and academic performance. In summary, a good understanding of the importance and predictors of preschoolers' literacy skills is needed to enhance children's later learning in formal schooling. Ecology theory and reviewed literature have indicated that child personal characteristics and family characteristics as well as home learning do effect the development of children. Hence, the present study examined the most effective predictors of literacy skills among Chinese preschoolers.

Methods

Samples and Procedure

The sample consists of 136 preschoolers with age range between three to six years old with their parents from three selected districts in the urban area of Selangor recruited in this study by using a Multi-Stage Cluster sampling technique. All participants, the focal preschoolers and their parents in the selected registered kindergartens are Chinese and fulfilled three criteria which established to select the research respondents in this study: (1) the preschoolers must be from a Chinese family (2) the Chinese preschoolers must in the age ranged of four to six years old, and (3) the preschoolers must speak English as their main language or second language at home.

Prior to data collection, approval were obtained from the selected kindergarten's principal. The current study only selected only three districts from urban area in Selangor which are Hulu Langat, Petaling, and Klang. Specifically, only one town or residential area was randomly selected from a large number of residential areas in each district due to the availability of study resources such as finance and manpower. Further, only three kindergartens were randomly chosen from each selected residential area in that particular district.

Measures

Socio-Demographics information was collected from the parents. Parents were asked to indicate their family monthly income, number of children in home, their spouse and their education level. In additional, parents were responded to personal information about their tested child in this study which includes age, gender, and birth order.

Home learning as well as parental involvement in home-based activities was measured by the Home Learning Environment Questionnaire (HLEQ) (Lonigan & Farver, 2002) which consists of three subscales: parents' literacy involvement with their children, parents' literacy habits and children's literacy interest. This questionnaire is a self administered questionnaire which is rated by the parents regarding their reading behaviour and reading activities with children in their home. A total of 13 items make up the HLEQ which is rated on a five-point scale that ranges from 1=never to 5=daily. The first five items 1, 2, 3, 4, 5 in HLEQ described the first subscale, namely parents' literacy involvement with their children. The items in this subscale asked about the reading activities done together among parents and their child. The reliability of the scale in this study was .86.

Preschoolers' literacy skill was measured by Test of Early Reading Ability Third Edition (TERA-3) (Reid, Hresko, & Hammill, 2001). TERA-3 is the new version after the amendment and improvement on several limitations found in the first and second version. Moreover, it is a well-known and

unique measure of the reading ability of young children between the ages of 3 years 6 months to 8 years 6 months. There are two picture booklets, namely Form A and Form B which consist of three subtests: alphabet, conventions and meaning. Each subtest consists of several items. This test starts with easy questions which slowly increase in difficulty. Form B was used as supportive data to show that TERA-3 is reliable in testing preschoolers' reading ability. The child earns 1 point for each item passed and scored 0 for incorrect items. After completion, the child would get a raw score for each subtest. Next, an interpretation is done based on the raw score to obtain a standard score. After that, the standard scores of the three subscales are totalled and converted to get a reading quotient. Based on the reading quotient, a conclusion of the reading ability of the focal child can be identified regarding the guideline: quotients 35-69 indicated very poor reading, 70-79 indicated poor reading, 80-89 showed below average reading ability, 90-110 showed average in reading, 111-120 indicated the reading ability is above average, 121-130 illustrated superior reading and 131-165 illustrated very superior reading ability. In summary, the TERA-3 was rated on a seven-point scale that range from 1=very poor to 7=very superior, high scores indicate higher level of reading skills. Cronbach's alpha for TERA-3 in this study was .97.

Data Analysis

First of all, a descriptive analysis was conducted to provide a clearer picture of the data distribution. Second, the magnitude and strength of the relationships of the study variables were quantitatively by using Pearson Correlation. Third, the Multiple Linear Regression was used to determine the best set of predictors of preschooler's literacy skills.

Results

Child Personal and Family Characteristics

Results showed that about 47.1% of the preschoolers were five years old and almost half of them are boys. Further, the majority of them are first-born children in their families. Typically, most of them come from small families with only one or two children in their family. Most of the families' monthly income was within RM4000 which was considered sufficient for their household spending. On the whole, the parents were educated and had successfully completed eleven to twelve years of primary and secondary education. Moreover, about 36% of the parents classified themselves as performing a low level of home learning, while 35.2% were at medium level, and 28.7% of the parents practiced a high level of home-based learning activity. About half of the children attained average literacy scores.

Relationships between Child Personal and Family Characteristics, Home Learning and Preschooler's Literacy Skills

Correlational analysis was used to explore the relationships among the study variables in the study (Table 1). The results show that only the child's age was significantly related to child's literacy skills ($r = 0.17, p < 0.05$) for child personal characteristics factor. The correlation coefficient implied that the higher the child's age, the higher the literacy skills achievement. For family characteristics factor, there was a significant positive linear association between monthly household income with child's literacy skills ($r = 0.29, p < 0.01$). Children whose families earn high incomes tend to achieve higher literacy skills. Significant linear relationships were also found between family total monthly income with alphabet performance ($r = 0.19, p < 0.05$), conventions performance ($r = 0.30, p < 0.01$), and meaning performance ($r = 0.18, p < 0.05$). The results of this

study also showed that there were positive significant relationships between mothers' education level ($r = 0.41, p < 0.01$) and fathers' education level ($r = 0.37, p < 0.01$) with literacy skills. The findings indicated that if both the father and mother had a high level of education, their children were more likely to get a higher score in literacy. Further, fathers and mothers' education level also showed significant relationships with child's alphabet performance ($r = 0.27, p < 0.01$; $r = 0.39, p < 0.01$), conventions performance ($r = 0.27, p < 0.01$; $r = 0.36, p < 0.01$), and meaning performance ($r = 0.25, p < 0.01$; $r = 0.28, p < 0.01$). Meanwhile, the findings illustrated that higher home learning practice was associated with higher level of child's literacy skills ($r = 0.45, p < 0.01$). The findings of the study also showed that when home learning activities increase, the child's alphabet performance ($r = 0.42, p < 0.01$), conventions performance ($r = 0.33, p < 0.01$), and meaning performance ($r = 0.44, p < 0.01$) also increase. However, there was no linear relationship between child's sex, child's birth order, number of children with literacy skills.

Table 1: Correlation between Variables of Study (N=136)

Variables	Literacy Skills	Alphabet	Conventions	Meaning
		<i>r (p)</i>		
Child Personal Characteristics				
Age	.17 (.05)*	.05 (.56)	.02 (.84)	.07 (.43)
Sex	-.04 (.64)	.04 (.65)	-.02 (.84)	-.15 (.09)
Birth Order	-.05 (.59)	.11 (.20)	1.12 (.17)	-.06 (.59)
Family Characteristics				
Monthly Household Income	.29 (.00)**	.19 (.03)*	.30 (.00)**	.18 (.04)*
Number of Children	-.13 (.14)	.04 (.69)	-.16 (.06)	-.18 (.04)*
Mothers' Education Level	.41 (.00)**	.39 (.00)**	.36 (.00)**	.28 (.00)**
Fathers' Education Level	.37 (.00)**	.27 (.00)**	.27 (.00)**	.25 (.00)**
Home Learning				
Parents' Literacy Involvement	.45 (.00)**	.42 (.00)**	.33 (.00)**	.44 (.00)**
Parents' Literacy Habit	.41 (.00)**	.43 (.00)**	.30 (.00)**	.40 (.00)**
Children's Literacy Interest	.23 (.01)**	.22 (.01)*	.24 (.01)**	.27 (.00)**
	.39 (.00)**	.38 (.00)**	.25 (.00)**	.32 (.00)**

Note: * $p < .05$, ** $p < .01$, sex was dummy coded (0=boy, 1=girl)

Predictors of Preschooler's Literacy Skills

Multiple regression analysis was utilised to determine how well the background variables (child personal characteristics, and family characteristics) and independent variables (home learning) predicted the dependent variable (literacy skills). The aim of multiple regression analysis is to discover which of these variables contributed the most in the explanation of the variance in children's literacy skills. Analysis of predictors of preschooler's literacy skills is presented in Table 2. Preliminary, analysis was conducted to ensure no violation of the assumptions of normality, linearity, multicollinearity and homoscedasticity.

In the current study, only five predictors (child's age, monthly household income, mothers' education level, fathers' education level, home learning environment) were included in the regression model in predicting children's literacy skills. The child's sex, child's birth order, and number of children variables were excluded in the following analysis because they have no significant relationship with children's literacy skills and its subscales in the bivariate analysis tested earlier. As shown in Table 2, the results suggest that the Adjusted R^2 of 0.27 implies

that the five predictor variables (child's age, monthly household income, mothers' education level, fathers' education level, and home learning environment) in the equation explained about 27% of the variance in children's literacy skills ($R^2 = .55$, $F = 10.56$ (5, 135), $p < 0.01$). The findings indicated that home learning ($\beta = .33$, $p < 0.01$) and mothers' education level ($\beta = .21$, $p < 0.05$) are important in explaining variation of preschooler's literacy skills among the five predictors. Additionally, the findings also indicated that none of the child personal characteristics (age), family characteristics (monthly household income, and fathers' education) made a unique prediction to children's literacy skills.

Table 2: Multiple Regression Analyses for Predicting Preschooler's Literacy Skills from Child Personal Characteristics, Family Characteristics, and Home Learning

Variables	Beta	Std. Error	β	t	p
Constant	.21	.67		.31	.76
Child's Age	.09	.12	.06	.75	.46
Monthly Household Income	9.60	.00	.03	.39	.70
Mothers' Education Level	.18	.09	.21*	2.03	.04
Fathers' Education Level	.10	.09	.12	1.12	.27
Home Learning	.05	.01	.33**	4.18	.00

Note: Significant level= * $p < .05$, ** $p < .01$, $F = 10.96$, $R = 0.55$, $R^2 = 0.30$,

Adjusted $R^2 = 0.27$

Discussion and conclusion

The current study aimed to determine the predictors of child's literacy skills among Chinese preschoolers. Based on hierarchical regression analysis, this study found that parent's involvement in home learning practices does increase the level of literacy skills among preschoolers. When parents actively participate themselves in home learning activities, they may enhance their child's literacy skills. These findings are in line with previous studies (Niklas & Schneider, 2012; Ngorosho, 2011) that illustrated parents' involvement in home learning activities can improve the letter knowledge, phonological awareness, vocabulary, and cognitive abilities of the preschoolers.

Besides that, the study indicated that mothers' education level is the strongest predictor of preschoolers' literacy skills in comparison to other familial factors in the model. These results of the current study are sharing important consistencies with previous studies, which seem to support that higher level of mothers' education level (Dearing, McCartney, Weiss, Kreider, and Simpkins, 2004; Husian, Chuah, & Mehar, 2011; Ngorosho, 2011) was associated with high level of preschooler's literacy skills. According to Dearing et al. (2004), highly educated mothers are having positive feelings about literacy and are more likely to involve in their children's learning. Thus, their child's literacy skills are outstanding than others.

Overall, the findings of this study support the theory that preschooler's literacy skills may be influenced by the myriad of factors which present within the Ecological Theory (Bronfenbrenner, 1979). The results showed that the theoretical model of literacy skills for Chinese preschoolers was appropriately described by the child's age, parents' education level, monthly household income, and home learning with its three sub-dimensions (parents' literacy involvement, parents' literacy habits, and child's literacy interest). The focus of the present study was to examine the immediate context of the preschoolers, such as the family setting (home learning environment), labelled the microsystem based on the theory's terms. The literacy involvement guidance style that parents provide at home may enhance the preschooler's literacy skills.

Likewise, this study provides empirical evidence on the role of the home learning in shaping preschoolers' literacy skills.

Limitations of this study highlight directions for future research. The findings in the present study are inconsistent with previous studies (Baroody & Diamond, 2012; Willis, 2011; Sokal & Piotrowski, 2011; Hamre, Pianta, Burchinal, & Downer, 2010; Hirvonen, Georgiou, Lerkkanen, Aunola, & Nurmi, 2010; Below, Skinner, Fearing, & Sorrell, 2010; Georgiou, Manolitsis, Nurmi, & Parrila, 2009) which indicated that child's sex, child's gender, and number of children in a family were positively significant to child's literacy skills. Although some reasons have been put forth to explain the discrepancy of the findings in this study, there is a need for future research to extend this study and investigate in depth to confirm the findings. Hence, this study recommends that future studies use other measuring instruments and methodological approaches like a mixed method approach to get a better understanding of the relationships among the tested variables. Furthermore, the findings in this study noted that children's interest has favourable effects in the realms of child's literacy skills. As mentioned in the study by Fisher, Doctoroff, Dobbs-Oates, and Arnold (2012), children's interest effectively contributed to their attention and task-focused behaviour which may increase their literacy skills later on (Martini & Senechal, 2012). Thus, future studies should investigate more extensively children's literacy interest. Apart from that, future research is encouraged to make comparisons for each age group of children and how it associates with the child's literacy skills. It could provide a clear picture for the authorities to distinguish the literacy level for children of each age group, and could develop effective intervention programmes based on that group. Future research also needs to expand this study by using more diverse samples and different settings so that the results can be generalized to the whole population in Malaysia. Finally, conclusions about the direction of effects cannot be made regarding the relation between the child personal characteristics and family characteristics because of the cross-sectional nature of the data. It would certainly be interesting to include more time points over a longer period of time.

References

- Abidin, M. J. Z., Pour-Mohammadi, M., & Ooi, C. L. (2011). The reading habits of Malaysian Chinese university students. *Journal of Study in Education*, 1(1).
- Alexander, J. M., Johnson, K. E., Leibham, M. E., & Kelley, K. (2008). The development of conceptual interests in young children. *Cognitive Development*, 23, 324-334.
- Aunola, K., Nurmi, J. E., Lerkkanen, M. K., & Rasku-Puttonen, H. (2003). The roles of achievement-related behaviours and parental beliefs in children's mathematical performance. *Educational Psychology*, 23, 403-421.
- Baker, L., Mackler, K., Sonnenschein, S., & Serpell, R. (2001). Parents' interactions with their first-grade children during storybook reading and relations with subsequent home reading activity and reading achievement. *Journal of School Psychology*, 39(5), 415-438.
- Baroody, A. E., & Diamond, K. E. (2012). Measures of preschool children's interest and engagement in literacy activities: Examining gender differences and construct dimensions. *Early Childhood Research Quarterly*.
- Baroody, A. E., & Dobbs-Oates, J. (2011). Child and parent characteristics, parental expectations, and child behaviours related to preschool children's interest in literacy. *Early Child Development and Care*, 181(3), 345-359.

- Baumann, J. F., Kanne'enui, E. J., & Ash, G. E. (2003). Research on vocabulary instruction: Voltaire redux. In J. Flood, D. Lapp, J. R. Squire, & J. M. Jensen (Eds.), *Handbook of research on teaching the English language arts* (2nd ed., pp. 752-785). Mahwah, NJ: Erlbaum.
- Beals, D. E. (2001). *Eating and reading: Links between family conversations with preschoolers and later language literacy*. Baltimore: Brookes.
- Beaty, J. J., & Pratt, L. (2003). *Early literacy and preschool and kindergarten*. Columbus Upper Saddle River, NJ: Merrill/Prentice Hall.
- Below, J. L., Skinner, C. H., Fearington, J. Y., & Sorrell, J. A. (2010). Gender differences in early literacy: Analysis of kindergarten through fifth-grade dynamic indicators of basic early literacy skills probes. *School Psychology Review*, 39(2), 240-257.
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.
- Carlisle, J. F., Fleming, J. E., & Gudbrandsen, B. (2000). Incidental word learning in science classes. *Contemporary Educational Psychology*, 25, 184-211.
- Chatterji, M. (2006). Reading achievement gaps, correlates, and moderators of early reading achievement: Evidence from the Early Childhood Longitudinal Study (ECLS) kindergarten to first grade sample. *Journal of Educational Psychology*, 98, 489-507.
- Cunningham, A. E., & Stanovich, K. E. (1998). Early reading acquisition and its relation to reading experience and ability 10 years later. *Developmental Psychology*, 33, 934-945.
- De Jong, P. F., & Leseman, P. P. M. (2001). Lasting effects of home literacy on reading achievement in school. *Journal of School Psychology*, 39(5), 389-414.
- Dearing, E., McCartney, K., Weiss, H. B., Kreider, H., & Simpkins, S. (2004). The promotive effects of family educational involvement for low-income children's literacy. *Journal of School Psychology*, 42, 445-460.
- Department of Statistics, Malaysia (2010). *Population distribution and basic demographic characteristics 2010*. Retrieved 4 September 2012 from http://www.statistics.gov.my/portal/download_Population/files/census2010/Taburan_Penduduk_dan_Ciri-ciri_Aras_Demografi.pdf
- Department of Statistics, Malaysia (2011). *Vital statistics Malaysia 2011*. Retrieved 8 April 2013 from http://www.statistics.gov.my/portal/images/stories/files/LatestReleases/vital/Vital_Statistics_Malaysia_2011.pdf
- Department of Statistics, Malaysia (2012). *Findings of the household income survey (HIS) 2012*. Retrieved 3 April 2013 from http://www.statistics.gov.my/portal/images/stories/files/LatestReleases/household/HIS_2012_Eng.pdf
- Echols, L. D., West, R. F., Stanovich, K. E., & Zehr, K. S. (1996). Using children's literacy activities to predict growth in verbal cognitive skills: A longitudinal investigation. *Journal of Educational Psychology*, 88, 296-304.
- Fisher, P. H., Doctoroff, G. L., Dobbs-Oates, J., & Arnold, D. H. (2012). Early math interest and the development of math skills. *Journal of Educational Psychology*, 104(3), 673-681.
- Georgiou, G. K., Manolitsis, G., Nurmi, J. E., Parrila, R. (2009). Does task-focused versus task-avoidance behaviour matter for literacy development in orthographically consistent language? *Contemporary Educational Psychology*, 35, 1-10.
- Geschwind, N., & Behan, P. (1982). Left-handedness: Association with immune disease, migraine, and developmental learning disorder. *Proceedings of the National Academy of Science*, 79, 5097-5100.
- Hamre, B. K., Pianta, R. C., Burchinal, M., & Downer, J. T. (2010). A course on supporting early language and literacy development through effective teacher-child interactions: Effect on teacher beliefs, knowledge and practice. *SREE Conference Abstract Template*.
- Hirvonen, R., Georgiou, G. K., Lerkkanen, M. K., Aunola, K., & Nurmi, J. E. (2010). Task-focused behaviour and literacy development: A reciprocal relationship. *Journal of Research in Reading*, 33(3), 302-319.
- Husain, F. M., Chuah, S. C., & Manjet Kaur Mehar Singh. (2011). Malaysian mothers' beliefs in developing emergent literacy through reading. *Social and Behavioural Sciences*, 29, 846-855.
- Hwang, H. Y. (2005). *Influence of the family income, children's language ability and home literacy environment*. Master's Thesis, Yonsei University, Seoul, Korea.
- Karrass, J., Braungart-Rieker, J. M. (2005). Effects of shared parent-infant book reading on early language acquisition. *Applied Developmental Psychology*, 26, 133-148.
- Kirsch, I. S., Jungblat, A., Jenkins, L., & Kolstad, A. (1993). *Adult literacy in America: A first look at the results of the National Adult Literacy Survey*. Washington, DC: National Center for Educational Statistics, U.S. Department of Education.
- Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, 30, 607-610.
- LaCour, M. M., McDonald, C., Thomason, G., & Tissington, L. D. (2009). The impact of a caregiver workshop regarding on pre-kindergarten children's emergent literacy development. *Education*, 132(1), 64-81.
- Lee, K. S., & Kim, S. H. (2012). Socioeconomic background, maternal parenting style, and the language ability of five- and six-year-old children. *Social Behaviour and Personality*, 40(5), 767-782.
- Lehr, F., Osborn, J., & Hiebert, E. H. (2004). Research-based practices in early reading series: A focus on vocabulary. *Pacific Resources for Education and Learning*, ERIC ED483190.
- Leseman, P. P. M., Scheele, A. F., Mayo, A. Y., & Messer, M. H. (2007). Home literacy as a special language environment to prepare children for school. *Journal of Child Language*, 10(3), 334-355.
- Leseman, P. P. M., & Van Tuiji, C. (2006). Cultural diversity in early literacy development. In S. B. Neuman, & D. K. Dickinson (Eds.), *Handbook of early literacy research* (pp. 211-228). New York.
- Lonigan, C. J., Allan, N. P., & Lerner, M. D. (2011). Assessment of preschool early literacy skills: Linking children's educational needs with empirically supported instructional activities. *Psychology in the School*, 48(5).
- Lonigan, C. J., & Farver, J. M. (2002). Home literacy environment questionnaire (HLEQ). *Early Childhood Research Quarterly*, 21.
- Lynch, J., Anderson, J., Anderson, A., & Shapiro, J. (2006). Parents' beliefs about young children's literacy development and parents' literacy behaviours. *Reading Psychology*, 27, 1-20.
- Martini, F., & Sénéchal, M. (2012). Learning literacy skills at home: Parent teaching, expectations, and child interest. *Journal of Behavioural Science*, 44(3), 210-221.
- Morrison, F. J., & Cooney, R. R. (2002). Parenting and academic achievement: Multiple paths to early literacy. In J. G. Borkowski, S. C. Ramey, & M. Bristol-Power (Eds.). *Parenting*

- and the Child's World: Influence on Academic Intellectual, and Social-emotional Development, 141-160.
- Morrison, F. J., Smith, L., & Dow-Ehrensberger, M. (1995). Education and cognitive development: A natural experiment. *Developmental Psychology*, 31, 789-799.
- Naglieri, J. A., & Rojahn, J. (2001). Gender differences in planning, attention, simultaneous, and successive (PASS) cognitive process and achievement. *Journal of Educational Psychology*, 93, 430-437.
- National Education Blueprint 2006-2010. (2010). *Centre for Public Policy Studies*. Retrieved 4 September 2012 from http://www.cpps.org.my/resource_centre/Education.pdf
- National Reading Panel. (2000). *Report of the National reading Panel: Teaching children to read*. Washington, DC: U.S. Department of Health and Human Services.
- National Research Council. (1998). *Preventing Reading Difficulties in Young Children*. Washington, DC. National Academy Press.
- Naour, P. J. (2001). Brain/behaviour relationships, gender differences, and the learning disabled. *Theory into Practice*, 24, 100-104.
- Ngorosho, D. L. (2010). Key indicators of home environment for educational research in rural communities in Tanzania. *Child Indicators Research*, 3(3), 327-348.
- Ngorosho, D. (2011). Reading and writing ability in relation to home environment: A study in primary education in rural Tanzania. *Child Ind. Res.*, 4, 369-388.
- Niklas, F., & Schneider, W. (2012). Home learning environment and the beginning of reading and spelling. *Contemporary Educational Psychology*, 38, 40-50.
- Performance Management and Delivery Unit (2009). *Literacy and numeracy education NKRA lab*. Retrieved 6 July 2012 from <http://pelajaranperak.gov.my/v2/modules/mastop/publish/files/files4b2ed3402c1e0.pdf>.
- Ravid, D., & Tolchinsky, L. (2002). Developing linguistic literacy: A comprehensive model. *Journal of Child Language*, 29, 417-447.
- Reid, D. K., Hresko, W. P. & Hammill, D. D. (2001). *Test of early reading ability third edition examiner's manual*. United States: Pro-Ed, Inc.
- Rodriguez, E. T., & Tamis-LeMonda, C. S. (2011). Trajectories of the home learning environment across the first 5 years: Associations with children's vocabulary and literacy skills at prekindergarten. *Child Development*, 82(4), 1058-1075.
- Rodriguez, E. T., Tamis-LeMonda, C. S., Spellmann, M. E., Pan, B. A., Raikes, H., Lugo-Gil, J., & Luze, G. (2009). The formative role of home literacy experiences across the first three years of life in children from low-income families. *Journal of Applied Developmental Psychology*, 30, 677-694.
- Scarborough, H., & Dobrich, W. (1994). On the efficacy of reading to preschoolers. *Developmental Review*, 14, 245-302.
- Shin, H. Y. (2007). *Parents' attitudes towards emergent literacy, home literacy activity and children's language ability in low-income families*. Unpublished Master's thesis, Yonsei University, Seoul, Korea.
- Shin, H. Y., & Kim, M. S. (2008). Parents' attitudes towards emergent literacy, home literacy activity and children's language ability in low-income families. *The Korean Association of Child Studies*, 20, 199-212.
- Snow, C. E., Burns, M. S., & Griffin, P. (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academy Press.
- Snow, C. E. (1999). Facilitating language development promotes literacy learning. In L. Eldering, & P. Leseman (Eds.), *Effective early education: Cross-cultural perspectives* (pp. 141-161). New York.
- Snow, C. E. (2004). What count as literacy in early childhood? In K. McCartney, and D. Phillips (Eds.), *Handbook of Early Child Development*. Oxford: Blackwell.
- Sokal, L., & Piotrowski, C. (2011). My brother's teacher? Siblings and literacy development in the home. *Educational Research International*, 10(6).
- Son, S. H., & Strasser, K. (2002). *Direct and indirect influences of SES on home literacy activities and kindergarten reading skills: Evidence from early childhood longitudinal studies*. Tokyo, Japan: Ochanomizu University.
- Willis, K. (2011). *Theories and practices of development* (2nd ed.). New York: Taylor and Francis Group.