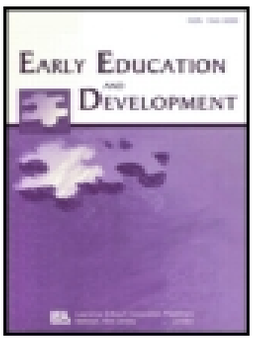

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Promoting Language and Literacy Development through Parent-Child Reading in Hong Kong Preschoolers

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Eighty-six Hong Kong Chinese kindergarten children were pretested on the *Preschool and Primary Chinese Literacy Scale* (*PPCLS*) and the *Peabody Picture Vocabulary Test - Third Edition* (*PPVT-III*), and assigned randomly within schools to 1 of 3 conditions, dialogic reading, typical reading and control. After an 8-week intervention, the children were posttested. Results indicated a significant main group effect for performance on both the *PPCLS* and the *PPVT-III*, with children in the dialogic reading group benefiting significantly from the intervention. These results indicate that early literacy-related activities in the home have strong and direct effects on both children's literacy growth and language development in Chinese. The success of the dialogic reading technique in this study contributes to the goal of raising global literacy standards and educational achievement.

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Parent-Child Book Reading as an Intervention Technique for Preschoolers in Hong Kong

Given the practical importance of language skills in industrialized and literate societies, acquisition of reading skills is essential for children. Children who have good reading ability can read more, acquire positive attitudes toward reading, and acquire more knowledge in numerous domains, relative to those who have inadequate reading ability (Snow, Burns, & Griffin, 1998). Previous research on helping children to learn to read has generally been conducted with families whose children were learning to read an alphabetic orthography. The present study was conducted to investigate the usefulness of a parent-child reading technique intended to facilitate children's learning of language and literacy skills among Hong Kong Chinese families.

Literacy and language, though different concepts, are closely related to each other. Literacy growth, at every level, depends on learning to treat language as thought (Olson, 1995). Over the past several decades, through correlational, experimental and longitudinal studies, researchers have demonstrated that parent-child reading is associated with many aspects of children's language growth as well as literacy (e.g., Wells, 1985; Zevenbergen & Whitehurst, in press). Numerous studies have indicated that children's home literacy environments and experiences have a significant impact upon their emergent literacy skills (e.g., Galda & Pellegrini, 1998; Heath, 1983; Taylor & Dorsey-Gaines, 1988), and early readers come from homes where reading materials are available and their parents read to them regularly (e.g., Bus, van Ijzendoorn, & Pellegrini, 1995; Morrow, 1983). Early home literacy experiences have different relations with oral and written language outcomes, and the importance of such literacy experiences for later reading skills is mediated by children's oral and written language skills (Sénéchal, LeFevre, Thomas, & Daley, 1998).

Parent-child reading is an ideal context for children's language development as it offers both social and contextual support for language development which matches children's needs, according to Vygotsky (1978). Parent-child reading provides a natural context for parents to assist their children in forming concepts about books, print and reading (Clay, 1979). However, if parents simply read the text and children passively listen, the potential of parent-child reading is not fully exploited (Heath, 1982). Previous research has suggested that parents' specific behaviors and practices in parent-child reading, such as questioning, extending information and praising, enhance children's language skills (Flood, 1977; Ninio & Bruner, 1978; Roser & Martinez, 1985; Snow, et al., 1998; Whitehurst & Zevenbergen, in press). When adults give children opportunities to be active participants in the reading experience by using interactive conversation during reading, children show greater language gains than when adults simply read the book to them (Whitehurst, Falco, Lonigan, Fischel, DeBaryshe, Valdez-Menchaca, & Caulfield, 1988; Whitehurst, Arnold, Epstein, Angell, Smith, & Fischel, 1994).

To maximize the effect of parent-child reading on children language development, Whitehurst and colleagues developed the dialogic reading technique. "Dialogic reading is a specific technique of parent-child reading which is based on the theory that practice in using language, feedback regarding language, and appropriately scaffolded adult-child interactions in the context of picture book reading facilitate young children's language development" (Zevenbergen & Whitehurst, in press, p.3). Dialogic reading alters roles during picture book reading so that the child gradually becomes the storyteller and the parent becomes an active listener, prompting the child with questions, expanding the child's verbalizations, linking

the text to the child's experience, and praising the child's efforts (Rogoff, 1990; Valdez-Menchaca & Whitehurst, 1992). Following the principle of proximal development (Vygotsky, 1978), children are supported to say more than they naturally do and this scaffolding contributes to a more rapid growth of children's language skills than their natural development of language skills.

Dialogic reading has been found to have a positive impact on children's language skills, especially vocabulary, through a series of experimental studies conducted to evaluate the effectiveness of dialogic reading interventions for children from upper-, middle- and lower-socioeconomic status groups (e.g. Hargrave & Senechal, 2000; Huebner, 2000; Valdez-Menchaca & Whitehurst, 1992; Whitehurst & Lonigan, 1998; Whitehurst, et al., 1988; Whitehurst, Arnold, et al., 1994). For example, Whitehurst et al. (1988) reported a 6-month gain in expressive vocabulary and an 8.5-month gain in expressive language fluency of upper-and middle-socioeconomic status 2-year-olds through a 4-week dialogic reading program at home, and these gains were maintained at a 9-month follow-up assessment. Valdez-Menchaca and Whitehurst (1992) found children in the dialogic reading condition were an average of 7.3 months ahead in terms of language age on the *EOWEVT*, 8.2 months ahead on the *ITPA-VE*, and 3.3 months ahead on the *PPVT-R* compared with the children in the control condition. The more parents read dialogically to their children at home, the more gains in their children's language abilities (Whitehurst, Epstein, Angell, Payne, Crone, & Fischel, 1994). Though findings give strong evidence that dialogic reading is an effective technique for enhancing the growth of English-speaking children's language skills, there have been fewer studies investigating the association between dialogic reading and children's literacy development. According to Zevenbergen & Whitehurst (in press), the dialogic reading interventions conducted with preschoolers may yield advantages for children in the later elementary school years as the information and skills learned from the shared reading in preschool years may assist them in subsequent reading comprehension in later years. Whitehurst, Epstein, et al. (1994) and Whitehurst, Zevenbergen, Crone, Schultz, Velting and Fischel (1999) demonstrated that an intervention which included both dialogic reading and a classroom-based sound and letter awareness program, fostered the growth of literacy skills of 4-year-olds enrolled in Head Start. Although a great deal of information is available on the effects of dialogic reading on language and literacy development in Western children, there is a lack of research on its effects in Chinese children.

To investigate whether dialogic reading intervention can produce the same positive effects on language and literacy development for Hong Kong children, the present study extended the technique of dialogic reading to preschoolers in Hong Kong. Parallel to most of the previous dialogic reading studies, vocabulary skills were investigated in the present study. Though much research evidence on dialogic reading and vocabulary skills has been obtained, research on the relationship between reading and literacy skills is relatively rare. Therefore, the present study was one of the few to examine the unique effects of dialogic reading on children's literacy development to fill this gap. Hong Kong children begin their preacademic training at a very young age. Almost every child aged between three to six years enters either a kindergarten or a child care centre (Opper, 1996), and on entering the nursery class of kindergarten at age three, children begin to learn to read and write complex Chinese characters (Fu, 1987; Li & Rao, 2000). The Chinese language is particularly difficult to learn because in Chinese, each spoken word or syllable is represented by an individual character so that learning to read and write in Chinese means mastery of thousands of individual symbols (Butcher, 1995). This is further compounded by other features of the Chinese written language, such as many redundant strokes, many homophones, and the poor

correspondence between sound and symbol (Li & Rao, 2000). To understand most texts in Modern Chinese, a reader should master approximately 3800 Chinese characters (Chen, 1997). The complexities of written Chinese may make parental input in teaching of literacy more important for learning the Chinese language than for languages with more regular grapheme-phoneme connections and a less complicated orthography, such as English (Li & Rao, 2000). Apart from the complexities of written Chinese, there is another difficulty encountered by Hong Kong children in learning Chinese. Cantonese, a dialect of the Chinese language, is the first language in Hong Kong. It has marked differences with Modern Standard Chinese. Cantonese pronunciation of the character is used when it is read aloud, but Modern Standard Chinese, which may be different from the spoken tongue, is used when it is read or written (Fu, 1987). Because Chinese is difficult to acquire, especially for Cantonese-speaking children, and Hong Kong children begin learning literacy and language skills at a very young age, aids to literacy and language development are needed. Parental help and involvement may, therefore, be essential in learning to read and write Chinese, especially for Cantonese-speaking children. This typically occurs in the context of parent-child reading in Chinese families (Li & Rao, 2000).

In Hong Kong, most parents (57.5%) believe preschool is the appropriate time to start literacy teaching, and the majority of Hong Kong parents (82.5%) focus on the academic advantages of early reading and believe storytelling is useful to develop their children's Chinese literacy skills (Li & Rao, 2000). In previous research, it was also found that 57% of Hong Kong families had set up reading corners for their children at home but many parents (75%) did not set a definite time for reading Chinese stories to their children (Li & Rao, 2000). Owing to parental positive expectations for parent-child reading, availability of reading materials at home and the irregularities of parent-child reading habits, programs which provide guidance for Hong Kong parents to read regularly and effectively with their children are especially needed.

This study was designed to test experimentally the hypothesis that the dialogic-reading intervention could produce greater gains in language and literacy skills of children compared with those engaged in typical parent-child reading. We hypothesized that children engaged in dialogic reading would score significantly higher on both a test of Chinese literacy skills and a vocabulary test than those engaged in typical reading. We also tested whether these two groups would obtain higher scores on these measures than those of a control group.

Method

Subjects

The sample included eighty-six children of normal intelligence attending third year kindergarten in two Hong Kong kindergartens. To obtain this sample, we randomly selected a list of kindergartens for normal children and contacted the principals according to the list. Finally, principals of these two schools agreed to participate in the project. Children whose parents agreed to participate, were Cantonese-speaking, and had at least a primary educational level were included in this study. Children ranged from 4.83 and 5.92 years of age ($\bar{\chi}$ = 5.31).

Materials

Eighty-six sets of 8 Chinese storybooks, which were commercially available, were used in the present study. The books used are shown in Table 1.

Table 1.

Books Used in the Present Study

Title	Author	Publisher
小水滴旅行	黃淑慧 (2000)	晶晶教育出版社
我要買泥沙	黃淑慧 (2000)	晶晶教育出版社
小雞穿鞋子	黃淑慧 (2000)	晶晶教育出版社
彩色的雲	黃淑慧 (2000)	晶晶教育出版社
一次奇異的賽跑	陸趙鈞鴻 (1999)	晶晶教育出版社
小鴨鴨肯說話了	陸趙鈞鴻 (2001)	晶晶教育出版社
小猴子的木瓜子兒	陸趙鈞鴻 (2001)	晶晶教育出版社
多了一個月亮	陸趙鈞鴻 (2001)	晶晶教育出版社

Twenty-nine sets of 8 Chinese storybooks with hints for prompt questions and recall prompts were used for the dialogic reading group. That is, we added hints for prompt questions on each page of each book and hints for recall prompts on the last page of each book based on the dialogic reading technique described by Whitehurst and colleagues (1988). Each book was accompanied by a dialogic reading guideline and pictures related to the questions of the story. The guideline explained the aims and offered hints for specific techniques of dialogic reading, while the pictures were the choices of the answers corresponding to the questions included in the book. In addition, a calendar checklist was used to remind the parents about when to read with their children.

Twenty-nine sets of 8 Chinese storybooks without any additional training or book prompts, in addition to a calendar checklist, were given to the typical reading group.

Twenty-eight sets of 8 Chinese storybooks were also given to the control group, but only after the study had been carried out. That is, the children in the control group received the storybooks following our post-testing of all three groups.

Measures

The Preschool and Primary Chinese Literacy Scale (*PPCLS*; Li, 1999) Character Identification and Visual and Auditory Discrimination subscales were used. The Character Identification subscale consists of 25 multiple-choice items and the Visual and Auditory Discrimination subscale consists of 20 multiple-choice items. For the Character Identification subscale, a character and four pictures were shown and the child was required to point to the picture from among the four which had the same meaning with the target character. For the Visual and Auditory Discrimination subscale, the experimenter read out the target character and required the child to select it from the four characters shown. Every item has one target character and three distracters chosen for graphic, phonetic, and semantic similarities. The internal consistency reliabilities of the Character Identification and the Visual and Auditory

Discrimination tasks were found to be .70 and .75, respectively, in our study. The internal reliability of the two subscales combined was .84. Because the main focus for the present study was on investigating whether there was a unique positive impact on literacy skills, but not on finding out which specific literacy skills were related to dialogic reading, together with the stronger internal consistency reliability when the subtests were combined, a total combined score of the two subscales, maximum 45, was computed for each subject and then compared across the groups at both pre- and post- testing.

The Peabody Picture Vocabulary Test – Third Edition (*PPVT-III*; Dunn & Dunn, 1997) is a 204-item achievement test of receptive vocabulary that was translated into Cantonese for this project. It was administered at both pre- and post- testing. Concerns may arise over the use of this test in evaluating the language ability of Hong Kong children given the lack of norms for the population. However, as the main purpose of the present study was to evaluate differences in children's language improvement as a function of the experimental intervention, the test served as a mean for the group comparison instead of reflecting the performance of the subjects in comparison with Hong Kong children in general. Therefore, raw scores were compared across the three groups in this study. The reliability coefficient of the PPVT-III (in Chinese) used in the present study was found to be .96.

Raven's Coloured Progressive Matrices (RCPM; Raven, Court, & Raven, 1995) is a 36-item coloured multiple-choice test of non-verbal IQ that presents a matrix-like arrangement of figural symbols and requires the examinee to complete the matrix by selecting the appropriate missing symbol from a set of six alternatives. It was administered at pretesting only.

Hong Kong Wechsler Intelligence Scale for Children Vocabulary subtest (HK-WISC; Psychological Corporation, 1981) is a Cantonese version of the *Wechsler Intelligence Scale for Children-Revised Vocabulary* subtest (WISC-R; Wechsler, 1974). It was used to test children's verbal IQ in the present study at pretesting only.

A demographic information questionnaire was administered at the pretest. It consisted of questions about participating children's school, class, sex, date of birth, maternal education level, maternal occupation, paternal education level and paternal occupation.

A follow-up questionnaire with five items for evaluating the 8-week dialogic reading experiment was administered following its implementation. It included questions about the frequency and duration of the dialogic reading during the 8-week experiment. The change of the child's interest in reading after the 8-week dialogic reading was assessed on a Likert-type scale, ranging from reduced a lot (1) to increased a lot (10), and the extent to which the parents liked the dialogic reading were included. Because the follow-up questionnaire was designed to evaluate the parent's attitudes and comments on dialogic reading method after using it for 8 weeks, the questionnaire was distributed to the dialogic reading group only.

Procedure

After informed consent had been obtained from parents, the parents completed the demographic information questionnaire and the subjects were tested on the *Raven's Coloured Progressive Matrices* (RCPM; Raven, Court, & Raven, 1995) and the W*echsler Intelligence Scale for Children Vocabulary* subtest (HK-WISC; Psychological Corporation, 1981). They were also pretested on the *Preschool and Primary Chinese Literacy Scale* (PPCLS; Li, 1999) and the *Peabody Picture Vocabulary Test – Third Edition* (PPVT-III; Dunn & Dunn,

1997). The pretest was conducted in two 30-minute sessions for each subject and all the tests were administered in the same order. Trained psychology major undergraduates, who were blind to the group placements, administered these tests. Eighty-six subjects in each class of the schools were assigned randomly to one of the three conditions, dialogic reading, typical reading, and control. The number of subjects of the three groups in each class was the same, or approximately the same when the number of subjects in a classroom was not evenly divisible by three. Because this was a class-based random sampling, to ensure the sampling was unbiased, separate ANOVAs were conducted to compare the differences of pretest measures among the three groups. The experimental and control groups did not differ significantly on any of a number of pretest measures, including chronological age, F (2, 83) = .01, $p > .05$, sex, F (2, 83) = 2.38, $p > .05$, maternal educational level, F (2, 81) = .72, $p >$ .05, or paternal educational level, F (2, 77) = .59, $p > .05$. Descriptive statistics on the pretest measures are shown in Table 2.

Table 2.

Descriptive Statistics on the Pretest Measures

Group	*N*	*M*	*SD*
Chronological age			
Dialogic Reading	29	5.31	.32
Typical reading	29	5.30	.31
Control	28	5.32	.29
Total	86		
Maternal Educational Level			
Dialogic Reading	29	2.38	1.35
Typical reading	28	2.64	1.06
Control	27	2.74	1.06
Total	84		
Paternal Educational Level			
Dialogic Reading	27	2.70	1.32
Typical reading	25	2.40	1.19
Control	28	2.75	1.27
Total	80		

Note. The maternal and paternal educational levels were entered as follow:
1 = primary, 2 = secondary, 3 = preparatory, 4 = college, 5 = post-graduate

After the pretesting was completed, materials were distributed to the subjects of the dialogic reading and the typical reading groups. The experiment was conducted for 8 weeks and the children were immediately posttested on the *PPCLS* and the *PPVT-III* by the same group of trained psychology major undergraduates. After the posttest, the 8 storybooks were given to the control group.

Dialogic-reading intervention

In the dialogic reading program, each child was provided with a total of 8 books. Hints for prompt questions and recall prompts were added in each book. One book and the pictures

for the corresponding book were distributed each week by teachers. Parents were encouraged to read each book twice in a week for 15 minutes each time with their children. The first book, a dialogic reading guideline, a calendar checklist, and pictures for that book were initially given to the parents. The parents were trained individually through a 20-minute training session by phone before the reading intervention started. They were trained to use special strategies and the materials given to encourage their children to be active storytellers in parent-child reading. The fundamental reading technique in dialogic reading is the PEER sequence in parent-child reading. The parent prompts the child to say something about the storybook, evaluates the child's response, expands the child's responses by rephrasing and adding information, and repeats the prompt to ensure the child has learned from the expansion. Sutton (1992) examined the efficacy of training parents in three different methods of child management – group, home visit and telephone. Children in all three intervention conditions showed clinical improvement compared to those in the control group and no significant differences between the three intervention conditions were indicated (Sutton, 1992). Later, to investigate the efficacy of telephone training, Sutton (1995) replicated the telephone training part of the previous study, and found that children whose parents received training improved in behavior and their mothers became less depressed compared to those in the control group. We believed that "telephone training" could also be an efficient method used to train parents how to read with their child. Apart from the effectiveness, methods which are time- and cost efficient are important for research. Therefore, "telephone training" was employed in our study.

Parents were contacted over the phone on a fortnightly basis to remind them to read the books with their children and to find out if they encountered any problems with dialogic reading. The follow-up questionnaire was distributed to parents of the dialogic reading group and collected through the schools after the posttesting of their children.

Typical reading

For the typical reading group, each child was provided with 8 books, which were the same as those used in the dialogic-reading intervention, but no hints were added. One book was given each week and each book was read twice in a week for 15 minutes each time. Parents were asked to read to their children as they normally would over the 8-week intervention. Parents were contacted over the phone on a fortnightly basis to remind them to read the books with their children.

Control

For the control group, no books were initially provided, and parents were expected to rely on their regular literacy habits with their children during the 8-week programme. However, a set of 8 books was distributed to the participants after the posttest was finished.

Results

Two separate ANOVAs were used to compare scores on the *RCPM* and the *HK-WISC* Vocabulary subtest among the groups to test for factors that might affect the children's language and literacy standard as well as their capacity for improvement. No significant differences in these measures were found, F (2, 83) = .24, $p > .05$ for the RCPM and F (2, 83) = .31, $p > .05$ for the *HK-WISC*. Accordingly, we did not include these measures in further analyses.

Two separate ANOVAs were conducted to compare pretest scores among the three groups on the *PPCLS* and the *PPVT-III* to ensure that any group differences were not due to

biased sampling. No significant differences were found on the pretest scores among the three groups, F (2, 83) = .66, p > .05 for the *PPCLS*; F (2, 79) = .26, p > .05, for the *PPVT-III.*

A univariate analysis of covariance (ANCOVA) was conducted for the *PPCLS* and the *PPVT-III* posttests, with the scores on the *PPCLS* and the *PPVT-III* pretests serving as covariates for each ANCOVA, as inter-group comparisons. Apart from comparing the mean differences across the three groups, a paired-samples t-test using the pretest score and the posttest score as the paired variables was conducted for the *PPCLS* and the *PPVT-III* for each of the three groups in order to illustrate the intra-group improvement under each condition.

For the inter-group comparisons, separate ANCOVAs were used to assess the effects of the intervention on the *PPCLS* and the *PPVT-III* rather than multivariate analyses of covariance because these dependent measures might have responded differently to the intervention based on past research. Multivariate tests are not suitable for this situation (Whitehurst, Arnold, et al, 1994). To investigate the effect of the intervention, it is also important to consider the inter-group comparison together with the intra-group improvement. The latter indicates that the intervention produces significant improvement for the group, whereas the former reveals improvement differences across groups. Because of errors in task administration on the *PPVT-III*, four participants' data were removed for this task, for a total of 82 subjects for the *PPVT-III* after the adjustment.

The ANCOVA on the *PPCLS* posttest score produced a significant main group effect, F *(2,* 82) = 3.19, p < .05. The effect for the intervention was decomposed into two orthogonal contrasts: The dialogic reading condition versus control was significant, p < .05, indicating a higher performance by the children in the dialogic reading group than by children in the control group, but the typical reading condition versus control was not significant, p > .05.

The ANCOVA on the *PPVT-III* posttest score revealed no statistically significant difference, F (2, 78) = .15, p > .05.

The paired-samples t-test for the *PPCLS* revealed a significant improvement for the dialogic reading condition only, t (28) = 3.87, p < .05. Differences for the typical reading, t (28) = 1.14, p > .05, and the control conditions, t (27) = .65, p > .05, were not significant.

The paired-samples t-test for the *PPVT-III* showed significant improvement for the dialogic reading condition, t (26) = 2.16, p < .05, and the typical reading condition, t (27) = 3.36, p < .05, but not a significant one for the control, t (26) = 1.06, p > .05, indicating the effectiveness of both parent-child reading conditions in aiding the improvement of children's language skill.

Descriptive Statistics for the *PPCLS* and the *PPVT-III* pretest and posttest scores are shown in Tables 3 and 4 respectively.

In order to investigate the effectiveness of the dialogic reading technique on enhancing children's literacy skills, effect sizes were computed, as done in past research on dialogic reading (Valdez-Menahaca & Whitehurst, 1992, Whitehurst, Epstein, et al., 1994). The effect size index was calculated by dividing the difference between the posttest score of the dialogic reading group and that of the control group by the root mean square of the standard deviation for the dialogic and the control groups (Cohen, 1988). The typical effect size in published reports of educational and psychological interventions is about .33 (Cohen, 1977; Sedlmeier & Gigerenzer, 1989). In previous dialogic reading research conducted by Whitehurst (Whitehurst, Epstein, et al., 1994), the effect sizes of .52 for the Writing factor and .62 for

Table 3.

Descriptive Statistics for the PPCLS Pretest and Posttest Scores

	Pretest			Posttest		
	N	*M*	*SD*	*N*	*M*	*SD*
Dialogic Reading	29	26.55	8.03	29	30.69	6.25
Typical Reading	29	28.21	7.35	29	29.44	6.64
Control	28	27.19	6.75	28	27.50	7.43
Total	86			86		

Table 4.

Descriptive Statistics for the PPVT-III Pretest and Posttest Scores

	Pretest			Posttest		
	N	*M*	*SD*	*N*	*M*	*SD*
Dialogic Reading	27	87.63	29.16	27	102.00	33.44
Typical Reading	28	94.46	33.57	28	106.89	32.66
Control	27	101.89	31.49	27	107.70	28.16
Total	82			82		

the Print Concepts factor were found, which fall into Cohen's medium effect size category and have been interpreted in the context of Head Start research as indicating educationally meaningful effects (e.g., Lee, Brooks-Gunn, Schnur, & Liaw, 1990). The effect size in the present study was found to be .47 for the *PPCLS*, which is around Cohen's medium effect size, demonstrating that the dialogic reading technique appears to produce significant effects on children's literacy improvement.

All parents of the dialogic reading group returned the follow-up questionnaire. It was found that parents typically read to their children dialogically twice in a week for 15-17 minutes each time on average. For the change of the child's interest in reading after the 8-week dialogic reading, 75.9% (22 out of 29) parents thought that it increased, whereas 20.7% (6 out of 29) parents thought that it remained the same and 3.4% (1 out of 29) parents thought that it decreased. Furthermore, 82.8% (24 out of 29) of the parents reported that they liked the dialogic reading programme while no parents disliked it.

Discussion

This research extends the findings of Valdez-Menchaca & Whitehurst (1992), and Whitehurst, et al. (1988, 1994) by demonstrating that the dialogic reading technique can work for Hong Kong Chinese children. Our results show that parent-child reading with the dialogic reading technique can produce significant improvement in language development and the acquisition of literacy skills of Hong Kong children.

The experimental design of the present study was based on what had been done in Whitehurst and colleagues' parent-child dialogic reading research (1988, 1994). The main difference between the present study and those of Whitehurst, apart from the population sampled, was that the dialogic intervention was compared with both the typical reading and the control groups in the present study, whereas either the typical reading or the control but not both, was compared with the dialogic reading intervention in previous research by Whitehurst and colleagues. In addition, most past studies of dialogic reading focused on the impacts of the dialogic reading intervention on language skills, especially the expressive and receptive vocabularies, and few compared its effects on both literacy and language skills. The present study assessed the gains of children with the dialogic reading intervention with both tests of literacy skills and receptive language skills.

The present study demonstrated that the dialogic reading intervention yielded gains in children's literacy skills as assessed by the *PPCLS*, and dialogic as well as typical parent-child reading appeared to have an enhancing effect on the children's receptive language development as assessed by the *PPVT-III*. The findings in the present study were similar to that of past research on dialogic reading. Whitehurst, et al. (1988) in the first dialogic reading research found no significant differences of the *PPVT-III* for the dialogic reading over typical reading, while Valdez-Maenchaca and Whitehurst (1992) showed a significant gain in receptive language skills assessed by the *PPVT-III* for the children in the dialogic reading group over the control. Also, significant effects were found on the Writing and Print Concepts factors, tapping literacy ability, but not on the Language and Linguistic Awareness factors by Whitehurst, Epstein, et al. (1994). Findings suggest that literacy and language should not be treated as a single construct.

Parent-child interaction with print can be implicit, in which children are exposed to written language but teaching words is not the focus, such as when parents read to the child, or explicit, where the main focus is on teaching the child to read and write the words (Sénéchal, et al., 1998). Implicit interaction is effective in enhancing oral language while explicit interaction is effective in enhancing written language, and literacy skill is mediated through oral and written languages (Sénéchal, et al., 1998). Parent-child reading, either dialogic or typical, provides an ideal context for implicit interaction. Therefore, both reading groups appeared to enhance effects of children's receptive oral language as indicated by the *PPVT-III*. However, only dialogic reading showed a facilitating effect on children's literacy skills, as indicated by the *PPCLS*. It seems that dialogic reading can facilitate both oral and written languages, which, in-turn, facilitate literacy skill. As Sénéchal, et al. (1998) pointed out, these implicit and explicit interactions with print could happen during the same activity. Dialogic reading seems to provide an ideal context for both such interventions.

The success of the dialogic reading intervention highlights the teachability and learnability of the Chinese language, the effect of parent-child reading on acquisition of language and literacy skills, and the importance of parent-child interaction in teaching language and literacy. The main component in facilitating children's language development by parent-child reading is the interaction between parents and children. That is, parents scaffold their children, and children actively respond. Because correlational work has documented a positive relation between the age of onset of reading activities and later linguistic and literacy development (e.g., Wells, 1985), and success of the dialogic reading was indicated in this study, developing effective parent-child reading techniques for young children is necessary. This will be the direction of future research.

The success of dialogic reading is not only in its effectiveness in enhancing children's language and literacy development, but also its special educational value. First, the improvements were shown within a relatively short period of intervention. The 8-week dialogic reading intervention appeared to produce significant effects on children's literacy and receptive vocabulary. Second, the dialogic reading technique is teachable within a short period of time to adults who have no background in psychology or linguistics. This is very important because education is not the responsibility of scholars or experts in the educational or psychological field only. Parents' contribution is the essential component of children's knowledge and skill acquisition. Third, training parents to handle the dialogic reading technique is inexpensive. In the present study, training required a guideline and 20-minutes training over the telephone. The advantages of dialogic reading are especially important for the parents in Hong Kong because, in this major financial center in the Asia Pacific region, it is common that both parents are busy with their careers, and there is little time for parents to read and even communicate with their children. With this technique, parents not only can make use of their limited time to engage in effective reading with their children, but also have more chances to communicate with their children, which is an important characteristic of the dialogic reading philosophy.

Apart from enhancing children's language skills and parent-child communication, dialogic reading can potentially raise children's interest in reading, at least as rated by parents. This should be noted because a child's interest in reading is related to literacy-relevant experience as well as language development (Lyytinen, Laakso, & Poikkeus, 1998). Differences in child interest in books may evoke variations in literacy-relevant experience (Dale, Crain-Thoreson, & Robinson, 1995). This interest in literacy is one of the preschool accomplishments that is of particular relevance to later academic challenges (Snow, et al., 1998).

Compared with past dialogic reading research, there is a special characteristic of the present study regarding the language used. Cantonese is a dialect of the Chinese language which has marked differences with Modern Standard Chinese. Cantonese pronunciation of the character is used when it is read aloud, but Modern Standard Chinese, which may be different from the spoken tongue, is used when it is read or written (Fu, 1987). Also, Cantonese lexical items that have no standard Chinese cognate must be avoided (Fu, 1987). According to Lord (1987), Cantonese could be grouped into 'high' and 'low' varieties with respect to the formality or informality of the situation in which it is used. The 'high' Cantonese varieties are similar to Modern Standard Chinese whereas the 'low' Cantonese varieties differ markedly from the Modern Standard Chinese, including vocabulary, grammar and the whole style of speaking (Lord, 1987). Using the word 'monkey' as an example, it is '猴子' in Modern Standard Chinese whereas '馬騮' in spoken Cantonese. In the present study, the hints included in the storybooks were written in the form of spoken Cantonese and the parents were aided to ask questions and discuss with their children in Cantonese rather than in Modern Standard Chinese, by saying '馬騮' instead of '猴子'. An intervention effect was found in this situation. However, it is not clear whether this characteristic influenced the effectiveness of the dialogic intervention. There may be an even greater effect when the parents are aided to ask questions and discuss with their children in Modern Standard Chinese before explaining it with spoken Cantonese (saying '猴子 ' before explaining that it means '馬騮'), because children can have more chances to be exposed to the morpheme and the corresponding characters, and to establish a linkage between the character and the morpheme. This special characteristic of the Chinese language is an important aspect of future dialogic reading research.

There were some problems with this study that might explain why some group differences were not statistically significant. First, we included a relatively small sample size in the present study. Second, given the particular difficulties of learning Chinese noted above, a longer intervention period may be required for marked changes in test scores to be observed in investigating the intervention effect on the acquisition of the Chinese language of Cantonese-speaking children. In addition, because random sampling was applied in the present study, there was no specific control used during grouping. As a result, the sex ratio and the pretest scores were not fully balanced across groups, though there were no significant differences found. For example, the pretest score of the *PPVT-III* of the dialogic reading was somewhat lower than those of the other two groups, which might have affected the results. In the future, equal sex ratios and assigning subjects to groups with reference to their standard test pretest score might be helpful. Moreover, the involvement of parents in dialogic reading is an important component of the effects on children's language. The effects were limited to children whose parents were actively involved in the programme (Whitehurst at el., 1994). A measure of parents' compliance to the programme can be included in future dialogic reading research. For instance, audiotaping of parent-child reading sessions can be used. Based on the experience of the present study, we have suggestions for further research on dialogic reading. As the present study included a single measure of receptive vocabulary and literacy skill, further studies can examine a broader array of oral language and literacy skills so that a full picture of the impact of dialogic reading on language and literacy development can be obtained. In addition, future studies can utilize other training methods for parent-training, such as watching a video or role play, and try to compare the effectiveness of different training methods so as to fully exploit the potential of dialogic parent-child reading.

In conclusion, dialogic reading is an effective parent-child reading technique in facilitating children's language and literacy development. It is inexpensive and easy to teach. The findings in the present study support a causal relationship between home literacy activities and children's language and literacy acquisition, and the success of dialogic reading in the west and Hong Kong contributes to the goal of raising global literacy standards and educational achievement.

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