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Exploring the effectiveness of the Family Literacy Programme with Singaporean preschool children at risk of literacy difficulties

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Abstract

Early literacy lays the foundation for the acquisition of conventional literacy skills, with lack of adequate literacy skills profoundly impacting on later school success. Family Literacy Programmes (FLPs) are interventions that promote active participation among families to improve their child's literacy. This research explored whether an FLP impacts on the early literacy achievement on Singaporean preschool children identified at risk of literacy difficulties. Two research questions were investigated: (a) Does FLP increase the early literacy attainment for preschool children, at risk of developing literacy difficulties, attending an existing literacy intervention programme? and (b) What were parents' perceptions of the effectiveness of FLP following workshops on early literacy? Participants included 8 parents and 9 preschool children from 4 to 7 years old enrolled in the DAS Preschool Programme. Data sources for analysis included pre- and post-test scores before and after intervention, post-workshop questionnaires and interview data. The research concluded FLP did not significantly improve the early literacy achievement of this group of children, although there was clear evidence of the impact of the programme overall. However, this masked differences between improvement on concepts of print for the experimental group, but only the controls for letter identification, key factors in early progress. Moreover, parents had a positive perception of the effectiveness of FLP, which provided skills and knowledge for parents to teach and guide their child in home-based literacy activities. Future research could look into the content and design of FLP in order to train parents more effectively, and provide literacy knowledge, skills and instructional strategies. In-depth and research-based evidence should be implemented to evaluate the long-term effectiveness of FLP.

Keywords: early intervention, preschool, parents, family literacy programme

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INTRODUCTION

Research has shown that the development of emergent literacy skills at preschool is related to the development of conventional literacy skills required for academic success in later school years (Lonigan et al., 2013). Children with inadequate emergent literacy demonstrated poorer academic achievements, compared to their peers with competent literacy skills (Dennis and Horn, 2011; Duncan et al., 2007). Consequently, early intervention has been widely advocated to reduce the literacy gap. The earlier the child receives the intervention, the lower the likelihood that the child develops severe reading difficulties (See and Koay, 2014). Moreover, family environment influences a child's literacy acquisition.

A number of factors, including family income, parental occupation and educational qualifications strongly predict a child's literacy attainment (Feinstein, Duckworth and Sabates, 2008). Parents from low-income families were less likely than middle-income families to engage in conversations and book reading routines to promote literacy skills (Hoff, 2006). Children from low SES acquired lower literacy skills and higher risk for future literacy difficulties (Heath et al., 2014; Baroody and Diamond, 2012). These children's literacy attainment tended to be poorer compared to their more advantaged peers. Family Literacy Programmes (FLPs) were designed to encourage literacy development at home, based on the theories of Vygotsky and Bronfenbrenner.

LITERATURE REVIEW

Two well-established theories, Vygotsky's Sociocultural Theory (1978) and Bronfenbrenner's Bioecological System Theory (1977) underpin the Family Literacy Programme (FLP), a family intervention programme that promotes literacy to alleviate literacy difficulties.

Vygotsky's sociocultural theory (1978) described learning as a social process that is influenced by the interaction between people and sociocultural experiences. He proposed children developed language through interaction with a more knowledgeable other (MKO) that is any individual who has a better understanding or a higher ability than the child. Parent and child literacy interaction helped to scaffold and support their child's zone of proximal development (ZPD) which is the difference between what a child can accomplish alone, and what they can achieve with the support of a MKO (Shaffer, 2009). There are advantages of this theory. First, it is a child-centred approach where the child is an active participant in the learning process. Second, a MKO can scaffold, extend and enhance learning to increase their language and early literacy skills. Third, it recognised the importance of the child's environment. Differences in family environment such as parental education and household income have been found in a number of studies to contribute to a child's development of literacy skills (Heath et al., 2014; Baroody and Diamond, 2012).

Bronfenbrenner's bioecological theory (1994) also proposed that the environment, including genetics, affected an individual's development. It consisted of four components: Process-Person-Context-Time. The process referred to the interaction between the individual and his environment, the person referred to a child and his individual characteristics such as age, and the context and time. The context comprised of four systems: microsystem, mesosystem, exosystem and macrosystem. These consist of the following:

- ◆ **Microsystem:** Immediate institutions and individuals that the child interacts with. Examples include family and school. Proximal processes occur to produce and sustain development.
- ◆ **Mesosystem:** Interactions between the microsystem. Examples include neighbourhood, school, and religious or peer groups.
- ◆ **Exosystem:** The broader community the child lives in where the child rarely has direct interactions. Examples include educational system and government agencies.
- ◆ **Macrosystem:** The attitude and ideology of the culture such as the laws, cultures, economic system, public policies.

The time dimension highlights changes over time affecting both the individual and his environment. There were advantages of this theory. First, it recognised differences in the individual's characteristics may affect development. Genes may make individuals at risk of developing literacy difficulties (Kendler and Baker, 2007; Parachinni, Scerri and Monaco, 2007). Second, different systems interplayed to influence the child's development. Dearing and colleagues (2006) found increased family involvement predicted an increase in the child's literacy achievement, especially for children at risk. With high family involvement, children from low income and low maternal education are able to gain literacy achievement.

Contribution of family literacy as an intervention towards literacy gains

Research has indicated that the Family Literacy Programmes (FLPs) are an effective intervention approach to promote active participation among families to improve their child's literacy development (Steensel et al., 2011). They create a literacy rich home environment that supports and manages literacy development.

A meta-analysis covering 16 FLP studies involving Kindergarteners and Grade 3 students reported parents who used specific literacy strategies made greater gains in reading achievement compared to parents whose involvement was limited to listening to their child reading (Senechal and Young, 2008). Furthermore, Sheridan et al., (2011) found

improvements in preschool children's language use, reading, and writing ability. Although both control and experimental groups made consistent gains during the first year of study, those in experimental groups continued to make gains during the school holiday period, arguably due to parents' continuous literacy engagement in the absence of a classroom. However, despite the positive contribution of FLP in literacy development, there are weaknesses in this field of research that must be considered here.

Brooks, Pahl, Pollard and Rees (2008) found there were few negative findings in a meta-analysis on sixteen FLP research studies conducted in the English language, predominantly from England, with non-English speaking countries; Malta, Turkey, and a Zulu-speaking area in South Africa, and bilingual program in Malta and Chicago, United States. However, this may indicate a potential bias in reporting positive findings because academic journals are less likely to accept negative findings. In addition, four studies using the gold standard in intervention research, randomised controlled trials, reported low significance for results on the effectiveness of FLP implemented in the United Kingdom and other countries. The four FLPs studied were Raising Early Achievement in Literacy (REAL), Dialogic Reading, the Even Start In-Depth Study, and Parent Empowerment through Family Literacy (PEFa) (Brooks et. al., 2008).

By contrast, Steensel et al., (2012) in a review of eight different meta-analyses on FLPs research from 2008 to 2010 concluded FLP contributed significantly to children's literacy skills. However, literacy gains ranged from large and negative scores to large and positive scores. Despite using well-designed research and meta-analyses on FLP, discrepancies in research findings could be due to challenges in methodology and implementing FLP.

The first challenge is based on participant retention as most FLPs comprised of families from low socioeconomic status whose family situation such as lack of caregiver, busy schedules and family commitments may limit their participation (McElvany and van Steensel, 2009). Second, the medium of instruction is usually English, which may not be a participant's first language. Language problems could have influenced the support rendered as it hampered the transfer of programme content from trainers to parents (McElvany and Steensel, 2009). Third, the amount of resources provided to participants was dependent on the type of literacy skills to be covered in FLP. An FLP that involved reading intervention required researchers to provide reading material and handouts about reading. It also involved researchers spending time to design the activities and program. These challenges would have to be taken into consideration when designing an FLP as it may affect the research findings.

Theoretically, deficits in phonological awareness and cerebellar processing contribute to dyslexia, leading to symptoms of difficulties in reading, writing and spelling (Fawcett and Nicolson, 2008; Spironelli, Penolazzi, and Angrilli, 2008). As phonological awareness is a core deficit observed in those at risk or diagnosed with dyslexia, most interventions

incorporate some of the principles: phonics-based, multi-sensory, cumulative and sequential learning and explicit teaching. It was found that preschool children in Singapore who were at risk of literacy difficulties made literacy gains when they received early intervention at DAS. The longer they were in the intervention programme, the greater the gain in literacy ability (Sim, Wong, Samsudin and Bunn, 2015). Interestingly, however, a study by Fong et al (2016) working with preschool children and parents in Singapore, found that parental support based on reading, spelling or flashcard support, seemed to have a negative impact on pre-schoolers' progress.

A limitation that Fong and colleagues (2016) noted for this study was that no training was given to the parents in how to provide support, and no attempts were made to measure the amount of involvement that parents had with their children's literacy. In order to improve a child's literacy development, an FLP could be introduced at the environmental/home level. FLPs were designed expressly to promote active literacy participation at home, with the goal of enhancing the child's literacy outcomes. The question arises, is support from parents who have received training via an FLP likely to prove more useful than untrained support?

Rationale

The aim of the research was to explore the effectiveness of an FLP on the early literacy achievement of Singaporean preschool children identified to be at risk of literacy difficulties. It was hypothesised that the FLP would lead to improvement in five early literacy areas: letter identification, concepts about prints, word test, writing vocabulary, and hearing and recording sounds in words. Two research questions guide this study:

- ◆ Does an FLP increase the early literacy attainment for preschool children at risk of developing literacy difficulties attending an existing literacy intervention programme?
- ◆ What are parents' perceptions of the effectiveness of the FLP following workshops on the importance of early literacy?

Participants

Preschool Children

9 Singaporean preschool children at risk of literacy difficulties participated in the study. They were enrolled in the DAS Preschool Programme. The control group consisted of 3 girls and 2 boys. The preschool children's ages range from 4 years 11 months to 6 years 5 months (mean age = 74.25 months). 4 were Chinese and 1 Indian ethnic race.

The combined family monthly income are as follow (see Figure 1), from which it may be seen that these are largely low income families in need of support.

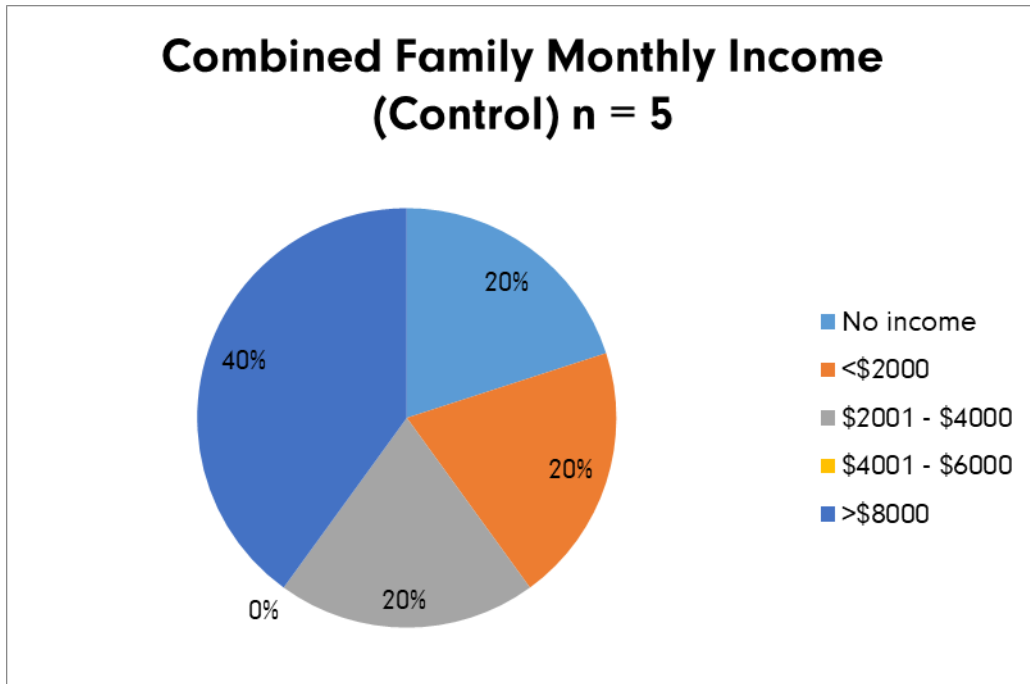


Figure 1: Combined family monthly income for control group n = 5.

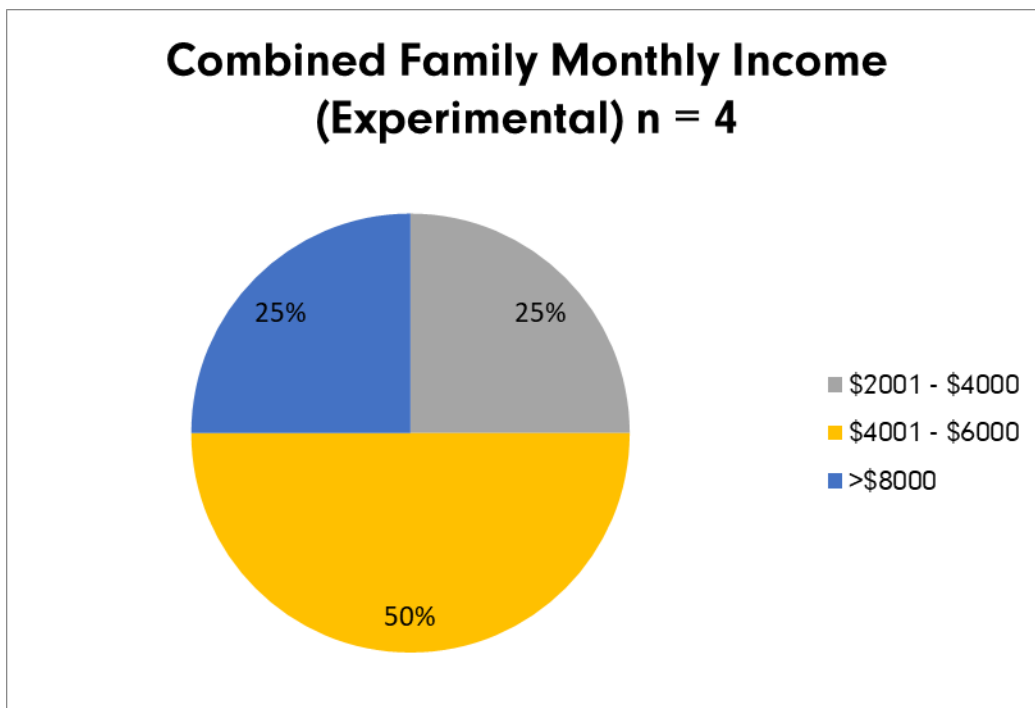


Figure 2: Combined family monthly income for experimental group n = 4.

The experimental group consisted of 4 boys. The children's ages range from 5 years 3 months to 7 years 1 month (mean age = 71.6 months). 2 were Chinese, 1 Malay, and 1 Indian ethnic race. The combined family income are as follow (see Figure 2).

Parents

A total of 8 parents and guardians had consented to be part of the study. They were all female. Their age ranged from 31 to 50+. 1 of the parents had 2 children who were enrolled in DAS Preschool Programme. Parent' highest educational qualification are as follow (Figure 3).

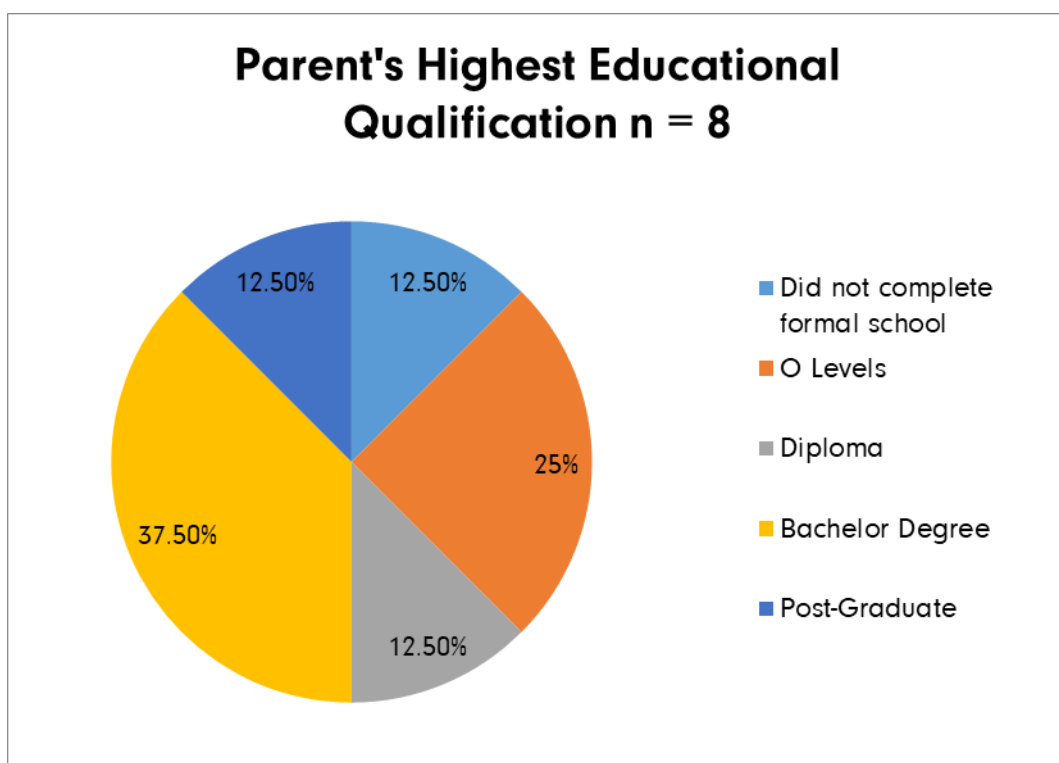


Figure 3: Parent's highest educational qualification.

Design

Both qualitative and quantitative methods were used in for this study. A pre and post-test quasi-experimental research design, questionnaire and phone interview were used for this study.

Measures

Family SES

Parents filled in a questionnaire by checking in the respective boxes to provide details regarding their gender, age group, race, marital status, language spoken at home, highest educational qualifications and combined family monthly income.

Log sheet

Each parent was given a log sheet to keep a record of the activities that were carried out at home, by recording dates and placing a tick on the respective column headings: recognising letters, recognising sight words, before, during and after reading strategies.

The Observation Survey of Early Literacy Achievement

The Observation Survey of Early Literacy Achievement was administered to all pre-school participants (Clay, 2002). This was conducted by the researcher. This was consistent at both pre and post-test. It is a standardized assessment tool to assess early literacy skill in young children from 5 years to 7 years old by recording their early reading and writing behaviour (Clay, 2002). The assessment tool had a reliability of alpha coefficient .87; split half .89, and validity of correlations greater than .70 (D'Agostino, 2012). The 5 components used to measure the child's early literacy skills were: Letter identification, concepts about print, word test, writing vocabulary and hearing and recording sounds in words.

Letter identification

Letter identification determined the letters the child knew and recognised. A list of uppercase and lowercase letters were printed on two individual A4 paper, using Comic Sans font 14pt. The child had to identify and call out the letters as the researcher pointed at each letter, working across the page, starting from left to right, in a non-alphabetical order. The uppercase letters, followed by the lowercase letters were shown to the child. If the child did not respond, the researcher prompted the child whether or not he knows the letter or the sound it makes. If the child does not respond to the first letter, the researcher pointed to the letters in the child's name and then goes back to the first line. A check is placed in the 'A' column for each correct letter response, a check in 'S' column for each correct sound response, and a check in 'I.R.' for each incorrect response. 1 point was awarded for each correct letter named.

Concepts about print

Concepts about print determined what the preschool child knew about the way spoken language is represented in print. The skills and concepts assessed include knowledge of book orientation, the directional arrangement of print, tracking of sentences, words, and letters, roles, and understanding of punctuation. The book entitled 'Stones' by Marie Clay that was developed for the purpose of this assessment was presented to each child. The child was asked a total of 24 questions from the checklist. 1 point was awarded for each correct response.

Word test

The word test determined if the child was building up a personal library of reading vocabulary words. These words are the most frequent words found in the text. The researcher chose List B, out of the 3 lists provided by Marie Clay Observation Assessment. There were 15 words in each list. Starting at the top of the page, the child reads each word, one at a time, as the researcher pointed to the word. 1 point was awarded for each correct response. The same list was presented at pre and post test.

Writing vocabulary

Writing vocabulary determined if the preschool child was building a library of known words that can be written in print form. The child wrote down as many words as they could on the paper given. The test had to be completed in 10 minutes. The researcher prompted the child by suggesting categories such as colours, animals, names and sight words when the child displayed difficulties with word writing. Each completed word spelled correctly scored 1 point. Reversed letters were marked incorrect as they could represent a different letter. Words that are written from right to left are marked correct even those containing a combination of reversed letters and correctly oriented letters. Capital letters are accepted as substitutions for lowercase letters. The score generated here is open ended depending on the knowledge of the child.

Hearing and recording sounds in words

Hearing and recording sounds in words assesses phonemic awareness by determining how the preschool child represents sounds in print form. To assess hearing and recording sounds in words, 1 out of 5 alternative sentences was selected to use in this study. A child is awarded 1 point for every phoneme written correctly. A total score of 37 can be awarded. Capital letters were accepted substitutions for lowercase letters. To avoid a practice effect, an alternative sentence was used for the post-test.

Post-Workshop questionnaire

Parents from the experimental group filled in a questionnaire to provide feedback for the FLP at the end of the second workshop. Parent had to respond on a 5-point Likert scale, where 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree. Parents were also able to write down up to a maximum of three aspects of the content of the workshop that was most beneficial for them and other topics they would like to be included in future workshops.

Parents' interview at the end of workshops

Phone interviews were conducted six weeks after the FLP had ended. Questions focused on family literacy practices, parent's view of the FLP, and difficulties encountered while carrying out the activities with their child. The names of the participants have been changed.

Procedure

Recruitment of participants

Parents whose child were enrolled in the DAS Preschool Programme were invited to participate in the study. Only parents who were able to a) communicate in English as their first language, b) have access to internet or data connection, and c) possessed technological devices such as tablets, smartphones, and computers were recruited to ensure the successful administration of home literacy activities, and the ability to answer the online questionnaire. Parents were assured that their consent to participate or withdrawal from the research at any point of the study would not affect their child's intervention at the DAS Preschool Programme. Parents gave their informed consent and acknowledged each pair of children and parents was randomly assigned to control or experimental group. Parents were not made aware of their assigned condition.

Family Literacy Programme intervention procedures

The Family Literacy Programme intervention comprised of two 2h workshops.

Workshop 1—Letter play

The workshop started with a discussion on the importance of recognising letters and sight words. Activities involving identifying upper and lowercase letters, and sight words from Dolch List 1 to 6 were introduced to parents for them to carry out the activities at home.

Workshop 2—The importance of book reading

The workshop started with a discussion on the importance of book reading to increase print knowledge, vocabulary and language skills, followed by a demonstration on RAZ-Kids, an online book library made available for all preschool children enrolled in DAS Preschool Programme. Before, during, and after reading, strategies were introduced to parents. Before reading: Point to the front and back of the book, discuss the illustration on the book cover, mention the author and illustrator and identify the title of the book.

During reading: Track the words in each line with the index finger, prompt (who, what, when, where, why and how) questions, prompt and encourage children to make predictions, ask questions to increase knowledge, vocabulary, and comprehension. After reading: encourage the child to associate the story with personal experience, ask how they felt after reading the book, what did they learn, discuss and retell the story, ask their favourite section of the book, and why. A pamphlet containing questions to ask during, before, and after reading was provided for parents to carry out at home.

RESULTS

The results were collated and are reported in table 1.

Table 1. Table of mean scores for each child at pre and post test

Participants	Age	School Level	Letter Identification (Maximum Score 54)		Concepts about Prints (Maximum Score 24)		Word Test (Maximum Score: 15)		Writing Vocabulary		Hearing and Recording Sounds (Maximum Score: 37)	
			Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
E1	5	K1	51	49	4	8	0	0	0	0	0	5
E2	6	K2	53	53	10	16	13	13	9	16	27	28
E4	6	K2	50	52	12	16	5	8	2	8	15	16
E5	6	K2	52	52	10	11	6	11	10	11	20	17
Percentage			95.37%	95.37%	37.50%	53.13%	40.00%	53.33%	N.A.	N.A.	41.89%	44.59%
C1	5	K1	49	50	9	12	1	1	0	0	0	1
C2	6	K2	54	54	19	18	10	11	6	15	27	23
C3	6	K2	53	53	14	12	5	11	0	4	1	2
C4	6	K2	46	53	7	13	7	9	2	7	8	12
C5	6	K2	52	53	14	12	4	5	1	0	1	0
Percentage			94.07%	97.41%	52.50%	55.83%	36.00%	49.33%	N.A.	N.A.	20.00%	20.54%

A single factor between-subjects ANOVA was conducted on the difference between the scores for both pre-test and post-test to compare the effectiveness of FLP on the early literacy achievement on Singaporean preschool children identified at risk of literacy difficulties. The results for both groups for the pre and post tests were collated and a single factor ANOVA undertaken on the difference between the scores for both pre-test and post-test in order to establish whether there were any significant differences between the groups

Table 2. Table of mean improvement, statistics and effect sizes for experimental and control groups

Test	Group	N	Mean	sD	ANOVA	Cohen's d
Overall early literacy achievement	Experimental	4	10.25	4.99	$F(1,7) = 0.15,$ $p = .71$	0.59
	Control	5	8.2	9.68		
Concepts of prints	Experimental	4	3.75	2.06	$F(1,7) = 2.13,$ $p = .19$	1.64
	Control	5	0.8	3.56		
Hearing and recording sounds	Experimental	4	1	3.27	$F(1,7) = 0.15,$ $p = .71$	0.33
	Control	5	0.2	2.95		
Vocabulary	Experimental	4	3.5	3.51	$F(1,7) = 0.002,$ $p = .97$	0.04
	Control	5	3.4	4.03		
Word test	Experimental	4	2	2.83	$F(1,7) = 0, p =$ 1	0
	Control	5	2	2.35		
Letter identification	Experimental	4	0	1.63	$F(1,7) = 1.18,$ $p = .31$	-1.12
	Control	5	1.8	2.95		

There was no statistically significant effect of FLP on early literacy achievement, $F(1,7) = 0.15, p = .71$. Neither were there any significant results for any of the experimental tasks. The result suggested that FLP did not lead to an improvement in early literacy

achievement for preschool children identified as at risk of literacy difficulties and currently receiving literacy intervention programme.

The small number of participants in each group means that the intervention would need to be very effective in order to make a significant difference in this study. An effect size analysis was therefore undertaken in order to check for the impact of the intervention on the experimental group. An effect size of 0 means that the two groups are the same. An effect size of + or - 1 means that the intervention group is around 1 standard deviation better/worse than the control group. In terms of the statistical significance of effects sizes, 0.20 is considered low, 0.50 is moderate and 0.80 is high (Cohen 1967). If the group used is small with little variability within it, effect sizes will be artificially larger, because the standard deviation – the number used for division - will be smaller. Nevertheless, this approach can provide useful information where results are not significant overall, including identifying which aspect of the intervention has been most successful.

Parents' feedback after attending FLP

All parents had positive feedback after attending the FLP. From the parents' interview at the end of the workshop, it was noted that the hand-outs, materials, discussion and hands on activities helped parents in their understanding. They agreed they were confident in carrying out home-based literacy activities after attending the FLP. All parents agreed they were confident in carrying out before, during, and after reading strategies. The content covered in the workshops were also useful to them.

Parents' perception of the effectiveness of FLP

Three themes were identified through the qualitative data analysis. The three themes were: awareness, knowledge and social support.

Awareness

Overall, parents who received the FLP had positive feedback on the FLP. They agreed they were confident in carrying out home-based literacy activities. During the workshops, tips and strategies were shared with them. One parent, P1 commented the "strategies were useful and I could apply them at home" and another P2 commented, "teach children how to play with letters and reading". Another parent, P3 commented, "the material given are useful". Parents had a better awareness of how to support their child by applying strategies and using the resources to help support their children.

Knowledge

Swain et al., (2014) found through FLP, parents gained the knowledge of how to interact and converse with their child. One parent, P1 commented "the workshop provided the knowledge how a child progresses from reading and spelling simple word pattern. It managed her expectations towards her child's literacy". She also mentioned "the list of

sight words acted as a guide and she was able to chart the child's progress in recognising sight words." The activities that she carried out become more purposeful as she "wanted the child to read independently". She was more aware of the intention of carrying out a particular activity.

All parents recommended a repeat of the workshops to other parents because the "workshop can help parents to teach and guide their children", and "increase their awareness of what they can do to help their child improve". One parent suggested to get parents to "share some of their problems at the start or end of the workshops so the workshop can be focused on tackling the issues faced by pointing the parents to the right direction to start the programme depending on child's level and abilities". Another wanted a workshop that focused on behavioural management to "manage their child's behaviour towards and during learning, as he tend to be uncooperative and forgetful".

Social support

During the workshops, it was observed parents shared the difficulties they had encountered with their child and the strategies they had adopted to manage their child's literacy or behavioural issues. It has been noted in other studies that parents learned from and supported each other during the FLP sessions (Swain et al., 2014). Anderson and Morrison (2007) suggested that although parents recognised the role of the teacher in helping to develop their understanding of concepts, parents also learned from each other. It highlighted the importance of providing social support so parents were aware they are not the only ones encountering difficulties in supporting their child in literacy activities.

Three other parents also requested future workshops to include topics on managing a child's behaviour towards learning. During the workshop, one parent, P1 complained that the application of some reading strategies, such as independent reading, would not work for her because her child preferred to have an adult reading to him. Another explained her child would look at the pictures but not the text. Due to the small group setting of the workshops, and the environment created by researcher and parents' participation, parents raised important issues that could influence the effectiveness of applying strategies with their child (Anderson and Morrison, 2007).

DISCUSSION

This exploratory study sought to examine the impact of the FLP on children's progress in literacy, as well as solicit parents views on the usefulness of the approach. It is interesting to note that there are large differences between individual children and between individual tests on the level of proficiency at pre-test. The pre-tests themselves seem to be set at an appropriate level for this age group, with pre-test scores for the experimental group ranging from 37.5% correct, to 95.3% correct. It was notable that the 5 year old children were much more variable in their performance. Overall, the

experimental and control group were well matched, although there were clear differences in hearing and recording sounds, based on scores of 0 or 1 for 2 of the control children.

Even though the findings did not reach statistical significance, these findings had practical value. It seems likely that the small sample size made it difficult to differentiate the two groups on the basis of their progress in literacy. Moreover, individual differences in how children approach literacy at this early age, would be enough to ensure that no significant results would be found. However, it may be seen from table 2 above that overall, the FLP intervention had a moderate effect size on early literacy achievement, suggesting that these results could well have been significant if a larger sample size had been employed. Interestingly, there are extreme differences in the impact of the intervention of different subskills, ranging from very large to non-existent to negative. So, the largest impact is on concepts of print, there is a small effect on hearing and recording sounds, but no effect at all on either vocabulary or the word test and a negative effect on letter recognition, with the controls showing better results. This is because the experimental group showed exactly the same score at pre and post-test (51.5 out of a possible 54), whereas one of the controls had made substantial improvement. These results to some extent reflect the relative difficulty of the tasks, with the word reading and writing vocabulary amongst the hardest. Concept of print is the earliest level in literacy, simply recognising the orientation of a book, and the concept of beginning and end in telling a story.

Interestingly, however, a number of important themes emerged from the questionnaire and interviews with the parents, relating to awareness, knowledge and social support. In the area of specific learning difficulties, these findings could influence the way professionals manage the partnership between Singaporean preschool children and their parents, for those children identified as at risk of learning difficulties.

IMPLICATIONS OF THE STUDY

First, contrary to earlier research findings that FLP led to literacy improvements (Sheridan et al., 2011; Senechal and Young, 2008), FLP did not lead to improvements in early literacy in this study of Singaporean preschool children at risk of literacy difficulties. This could be attributed to the small sample size. In Senechal and Young's (2008) research, they covered a bigger sample and wider age range, as opposed to a small group of participants in the current research. Second, the duration of FLP intervention was too short as it was only six weeks long. Third, the pre-schoolers here have been identified at risk of literacy difficulties, thus, they required extensive or explicit remediation.

Phonological awareness was one of the core deficits presenting in those at risk of literacy difficulties. Nicolson and Fawcett (2006) found almost all children with dyslexia displayed impairments in phonological awareness, and that children with phonological impairments at five years old will continue to develop difficulties in reading and spelling. As a result, effective intervention should incorporate the following principles: highly-structured and

phonics-based, multi-sensory, explicit teaching, sequential and cumulative learning, with overlearning to achieve automaticity (Reid, 2009). These preschool children were identified to be at risk of literacy difficulties, hence they respond better when teaching and learning adopt these principles. The Orton-Gillingham (OG) approach is a multi-sensory, systematic, sequential and cumulative phonological-based intervention that is used in Singapore. Educational therapists trained in the OG approach use explicit instructions to teach phonological awareness, letter-sound knowledge and other literacy skills. Lim and Oei, (2015) found Singaporean students with dyslexia between the ages of 6 to 15 years old demonstrated improvements in reading and spelling. More useful in this context however, are the findings by Fong, Lim, Alam and Lim, (2016) that found home support did not lead to literacy development in a sample of children and parents in Singapore receiving support at the DAS. By contrast, children in Fong et al's study whose parents provided support made less progress than those who did not. Parents of these children could have their own anxieties that created a negative learning environment based on frustration and angers, thus, the way home support was measured might have different effects on a preschooler's literacy development. In addition, the parents of these preschoolers may have similar literacy difficulties, hence, they may be limited in their provision of support, thus creating a reverse in their child's literacy development (Fong, Lim, Alam and Lim, 2016). This is reflected in the current study by some of the parents who reported difficulty with behavioural issues while undertaking the FLP with their children.

It seems that even the addition of training for parents, as provided by the FLP in the current study was not sufficient to improve literacy outcomes. Nevertheless, it is interesting to note that there is no evidence here for children deteriorating following parental support, unlike the earlier study by Fong et al., with a similar group of children in Singapore. This suggests that there have been subtle positive effects that may be difficult to measure on this group of children in this study.

Using the OG method on individuals with dyslexia or at risk of dyslexia leads to significant improvements in word attack, decoding, reading and spelling (Ritchey and Goeke, 2006) This pattern has also been found in Singapore following intervention at the DAS (Lim and Oie, 2015; Sim et al., 2015). However, implementing interventions based on the principles requires training, and the programmes can be used only by trained individuals (Reid, 2009). This finding implied that as the parent participants in the experimental group were not trained in the knowledge of the OG principles, only in the benefits of literacy support, it could even have hampered the teaching and learning process, and thus was not reflected in the improvement of overall early literacy skills measurement. This finding highlighted the need to look into how to support parents of preschool children with literacy difficulties more effectively. We need to consider whether teaching parents the principles or basic theoretical knowledge of teaching and learning are more effective than conventional participation in workshops.

However, parents had a positive perception of the effectiveness of the FLP. One parent commented it “provided the knowledge” and “materials provided aided in her supporting her child’s literacy”. Parent participation in the experimental group also gave positive feedback about the workshops. Overall, they would recommend the FLP to other parents because it empowered them to “teach and guide their children” and “increase their awareness of what they can do to help their child improve [their literacy skills]”. Even though FLP did not lead to improvement in overall early literacy achievement, parents viewed the FLP as beneficial for them. They gained knowledge, skills and confidence that would help them interact effectively and improve their child’s literacy development (Timmons and Pelletier, 2015). This finding reinforced the fact that parents do want and need to play an active role in their child’s literacy progress. Parents learn best when experiences are meaningful to them (Patel, Corter and Pelletier, 2008). This finding highlighted that educators or FLP developers need to solicit parents’ opinions and needs on the topics of interest with which they needed support, when designing the content of FLP. The FLP can not only meet the parents’ objectives for attending the intervention programme but provide them with the theoretical and practical knowledge to apply in their daily interactions with their child.

Finally, managing a child’s behaviour was a common theme raised while conducting the workshops and was indicated in the questionnaire conducted at the end of the workshop. During the workshop, parents exchanged tips on how they manage to overcome their child’s behaviour while carrying out home-based literacy activities. This finding implied that parents encountered behavioural challenges that could possibly hinder the success of carrying out literacy activities. The results highlight that FLP developers would need to equip parents with a variety of instructional techniques such as effective rewards and praises, to support their child’s literacy development (Terlitsky and Wilkins, 2015). When the child responded positively to their parents during literacy activities, parents experienced more positive interactions with their child (Robinson, 2012). These reciprocal effects fuelled both parent and child’s motivation to engage in home-based literacy activities that contribute to their literacy skills development. In exchange, parents become more engaged in their child’s learning and development. It is important to look into the development of the content of FLP, and to consider teaching both literacy activities and instructional techniques as part of FLP to empower parents.

Hence, the future FLP could be improved by looking into the content that covered theoretical and practical knowledge of literacy development, catering to parents’ needs and topics of interest, and providing instructional techniques to manage challenging behaviour.

RECOMMENDATIONS

There is a need to provide well-informed training and support for parents. Crosby et al., (2015) proposed teachers and professionals need to help parents learn the necessary

skills should they want parents to carry out literacy activities with their child. In addition, ongoing support must be rendered in their work with their child. Second, teachers and professionals need to look into the topics of interest that will engage parents in FLP participation. Parents want to help their child in literacy development. Hence, there is a need to use evidence-based methods that have been proven to be effective. This was one of the principles proposed by Rasinski, Padak and Fawcett (2009) that promoted effective parental participation in FLP. When parents and children are able to experience positive interaction while implementing home-based literacy activities, parents become more engaged. Both positive outcomes create a cyclical effect that promotes literacy development.

LIMITATIONS

There were three limitations of this present research. The first limitation was the small sample size of parental and child participation. Due to the small sample size, there was no even distribution of demographic representation of the sample group in both experimental and control group in proportion to the population. It is worth exploring the possibility of conducting research by recruiting participants from different demographics to ensure the representativeness of the sample in DAS Preschool Intervention Programme. Second, there was subject inclusion where only parents who used English as their first language could participate in the research. Singapore is a multi-racial society where bilingualism is practiced. Thus, English proficiency varies among different families. According to the Department of Singapore Statistics (2016), only 23% of the population aged 5 years old and above used English as their first language. 77% of the population used their mother tongue language that includes; Mandarin, Chinese Dialects, Malay, Tamils and others as their first language at home. Bearing in mind there is a large presence of families with English as a second language, these families could benefit from the FLP. Third, more controlled variables for both experimental and control groups could be put in place. These could include the number of weeks the preschool child has been receiving literacy intervention at DAS Preschool Intervention Programme, the other literacy interventions the child receives outside of DAS, and the amount of time spent on literacy activities at home. This would help to control for external factors that could affect the validity of the study.

FUTURE DIRECTIONS

To conclude, the study seems to suggest that FLP is not effective on the overall early literacy achievement of Singaporean preschool children identified at risk of literacy difficulties. There is some evidence that concepts of print improved for the experimental group, based on a strong effect size, but any improvement in letter recognition was lower for the experimental than the control group. However, the FLP has reversed the negative impact found in earlier research (Fong et al., 2015), when parental support seemed to hinder rather than help children to progress. Moreover, parent participants had a

positive perception of FLP and would recommend it to other parents as it gave them the knowledge and skills to support their child's literacy development. Even though there was no significant improvement in overall early literacy achievement, effective FLP could still be an approach to improve a child's literacy. Parents play an important role in their child's acquisition of early literacy skills. As discussed, there are limitations to the present study. This study can be replicated with greater consideration for larger sample size, involving families from English as a second language background, ensuring an even distribution of demographic representation for both experimental and control group in proportion to the population in DAS Preschool Intervention programme, and more controlled variables to extend the reliability and validity of the research findings. For future research, it is important to look into the content of FLP that emphasise the importance of providing parents with training in literacy development, as well as in instructional strategies and how it impacts early literacy skills development (Capentieri, Fairfax-Cholmeley, Lister and Vorhaus, 2011). Researchers could also consider conducting follow-up interviews every three months, to understand the ongoing changes in parents' perception and practices of FLP. More in-depth and evidence-based research should be implemented over time and evaluated in order to evaluate the long-term effectiveness of FLP.

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