

CRITICAL CAPITAL: TEACHING AND LEARNING

AATE/ALEA National Conference, Canberra.

8-11 July 2007

TITLE OF PAPER:

Design-based Research of Emergent Literacy: Enhancing Potential for Young Children.

NAME OF AUTHOR: Dr Janelle Young

AFFILIATION: Australian Catholic University, McAuley Campus, Banyo Queensland

TELEPHONE: (07) 3623 7160

FAX: (07) 3623 7247

EMAIL: j.young@mcauley.acu.edu.au

POSTAL ADDRESS:

PO Box 456

VIRGINIA Q 4014

DESIGN-BASED RESEARCH OF EMERGENT LITERACY: ENHANCING POTENTIAL FOR YOUNG CHILDREN.

ABSTRACT

Design-based research is an emerging research paradigm that acknowledges the complexity of interactions, teaching and learning in classrooms. These studies involve systematic design and the study of teaching strategies and learning resources. A continuous cycle occurs where theory and practice are intertwined and involve design, enactment, analysis, reflection and redesign. This research methodology was employed as the researcher worked with two teachers in a preschool in North Queensland with the aim of enhancing emergent literacy learning opportunities for young children. The study commenced with professional development sessions for participating teachers where current research findings in early literacy, socio-cultural and emergent literacy theories and related pedagogies were shared. Participating teachers then worked collaboratively with the researcher to embed literacy-related activities into their play-based preschool programs as they continued to negotiate aspects of the planning with the children. Both qualitative and quantitative data were collected and results showed young children's emergent literacy understandings improved significantly on a number of measures over a period of five months and teachers' perceptions of emergent literacy pedagogy in preschool changed due to the experience.

Keywords

emergent literacy; preschool; young children;

BACKGROUND TO THE STUDY

The years prior to school continue to be acknowledged as significant in a young child's life particularly in relation to the development of 1) early literacy, 2) social and emotional development, and 3) brain development (Dickinson, McCabe, & Essex, 2006 p. 11). Valuable learning opportunities are available via families, childcare, preschool and community experiences (DEST, 2005) and yet these are not always used to advantage particularly for early literacy. A recent analysis into the costs and benefits of high quality early childhood education determined a greater chance for school success was possible where social, pre-literacy and numeracy skills were emphasised as these enabled a smooth transition from home to school (Lynch, 2004).

Despite increased research focussing on the way young children develop early literacy understandings prior to school, (Badian, 1994; Britto, 2001; Dickinson and Tabors, 1991; Hill et al., 1998; Juel, 1988; Kennedy, Ridgway & Surman, 2006; Meiers and Forster, 1999; Weinberger, 1996) results show that not all children have the opportunity of developing emergent literacy understandings and inequality of opportunity still exists. These results are reflected in Australia with those from socio-economically

disadvantaged and culturally different backgrounds still achieving less well with literacy in the early years of schooling (MCEETYA, n/d). By way of contrast, Hill (2004) described privileged literacy in preschool and demonstrated how some children receive support both from home and in their early childhood settings. Features within the life worlds of these children included “psychological and emotional support; availability of books at home; high expectations and love of learning; complex patterns of language use and child-centred pedagogy combined with explicit literacy teaching” (pp. 169). The question remains of how to provide this level of support and opportunity for all young children.

Longitudinal research studies (Blatchford et al, 1987; Crone and Whitehurst, 1999; Oliver, Dale & Plomin, 2005; Purcell-Gates, 1996; Young, 2002; Young, 2004) reinforce the importance of early language and literacy-related opportunities as results have shown that young children’s literacy understandings in preschool or early Year 1 relate strongly to later measures of literacy achievement. Phonological and phonemic awareness, knowledge of letter names and rapid naming all have been shown to play important roles in the development of word recognition (Aarnoutse, van Leeuwe & Verhoeven, 2005).

With such a strong research basis over the last three decades, are early education policies in the western world reflecting the need to provide opportunities in prior-to-school settings to assist young children to develop pre-requisite literacy understandings? In the United States a greater emphasis has been placed on oral language development, phonological awareness and print awareness. Major reports (Bowman, Donovan & Burns, 2001; IRA & NAEYC, 1998; Shonkoff & Phillips, 2000; Snow, Burns & Griffin, 1998) have contributed to these current changes. Research reports reviewed by Snow et al (1998) supported preschool attendance as having the potential for contributing to positive change in relation to oral language and emergent literacy development (National Center for Educational Statistics, 1995 & Pianta & McCoy, 1997). Support for focusing on emergent literacy prior to school also was outlined by Bowman et al, (2001) with different levels of understanding being delineated for 2-3 year olds and 3-4 year olds using the categories “enduring understanding, important to know and do and worth being

familiar with” (pp. 187-188). For 3-4 year olds some aspects of literacy listed were: attending to the role of print in texts and sounds of the language; developing vocabulary; connecting stories to life experiences; becoming familiar with the alphabet; gaining literal meaning from narratives and experimenting with writing.

In the United Kingdom researchers acknowledge that “as a social practice, literacy learning is mediated by language and accomplished in a context in which social actors position, and are positioned by, each other in verbal and non-verbal and textual interaction” (Hall, Larson & Marsh, 2003, pp. xix). The Department for Education and Skills (DfES) commenced the Literacy Strategy in 1998 and developments are ongoing. With the recent publication of the revised Primary Framework for Literacy and Mathematics and the Independent Review of the Teaching of Reading (Rose, 2006) new directions are planned and these include continuing to develop policy and resources with an emphasis on improving literacy outcomes for children from 3 to 11 years of age.

Early childhood literacy is acknowledged as becoming increasingly complex as the modern world embraces new communication tools, media and new technologies and as young children are involved in using these there is the potential for positively impacting on emergent literacy understandings (Gillen & Hall, 2003). In a study conducted in the United Kingdom, Marsh et al (2005) found from a survey of 1,852 parents and carers of young children that many are immersed in “practices relating to popular culture, media and new technologies from birth” (pp. 5). It was also found that there was a positive effect on language and literacy when aspects of popular culture, media and new technologies were utilised in early childhood settings (Marsh et al, 2005). From a socio-cultural and constructivist view of learning the perspective that literacy learning begins with formal schooling is being challenged and family and home contexts are being recognised as playing an important role in supporting the child as an active participant in literacy learning (Razfar & Gutierrez, 2003). Family members need to be acknowledged as the child’s first teachers and engaging with families in relation to language and literacy development is an important role for early childhood educators (Morrow, 2005).

Early childhood settings can provide positive literacy learning environments that support the development of emergent literacy understandings. When describing ‘environment’ in early childhood settings the term “is an aggregate of conditions and influences on learning” (Makin, 2003, p. 327). The physical environment includes the design of the setting, resources and ready access to these and the psychosocial environment includes the interactions among staff, children, families and the wider community (Makin, 2003). All of these considerations can enhance literacy learning in the early years when due considerations are made.

Despite results from research studies and policy enactment, debates regarding the need for the inclusion of literacy-related learning activities in the prior-to-school years still prevail and in Australia no common National policy exists. Arguments concerning beliefs about how and when children learn to be literate continue as opinions and beliefs of early childhood educators often lie at the heart of the debate and these vary across a continuum of opinion (Ure & Raban, 2001). While individual States within Australia are addressing the need for emergent literacy in prior to school settings, progress from a National policy perspective is much slower.

In Queensland, a full time non-compulsory Preparatory Year (Prep) commenced in 2007 and children turning five by June 30 may attend these classes in the year of their 5th birthday. The child is effectively six months older than previously required in preschool classes (up until December 2006). The Early Years Guidelines (QSA, 2006) include aspects of early literacy within Language Learning and Communication component of exploring what children learn.

THE STUDY

The purpose of this paper is to describe how design-based research was applied to an urgent issue in Australian education, namely how to enhance emergent literacy opportunities for young children in early childhood programs in the year prior to commencing Year 1. In achieving this purpose it was necessary to explore children’s pre and post emergent literacy understandings and to come to understand teachers’

perceptions of emergent literacy and examine their reflections on the enactment of new strategies to embed literacy-related activities into play-based programs.

The study had three key components: teacher professional learning; university personnel and teachers working collaboratively and developing partnerships for learning with parents. The study was guided by the following Research Questions:

- 1. What is the effect on children's emergent literacy understandings when literacy-related activities are embedded in play-based learning programs in preschool?*
- 2. How do teachers perceive children's literacy learning during the study?*
- 3. What are the teachers' personal reflections on their own learning during the study?*

Teachers, parents and children from two Catholic primary schools one in North Queensland and one in Brisbane volunteered to participate in the study. Four preschool teachers and 87 preschool children and their families formed the total cohort. For the purposes of this paper, the North Queensland context with two teachers and 50 preschool children is reported. This study utilised a mixed method design where both quantitative (pre and post screening of the children) and qualitative (teacher interview) data were gathered.

Pre and Post Screening Tasks

After six months in preschool (June) the children were screened to ascertain their current print-based emergent literacy understandings (pre test). It is acknowledged that these tasks do not account for multiliterate tasks that many young children engage in today, but in the context of this preschool setting limited technology was available and there was no online connection. Oral language and written language concepts were measured using the following screening instruments:

1. The Word finding Vocabulary Test (Renfrew, 1995).
2. Sutherland Phonological Awareness Test Revised (SPAT) – subtests 1-5 [syllable counting; rhyme detection; rhyme production; blending CVC and onset identification]. Each subtest consists of 2 practice items and 4 test items (Neilson, 2003);
3. Self portrait and writing own name and identifying letters (Justice, Invernizzi, Geller, Sullivan & Welsch, 2005).

4. Writing vocabulary (Clay, 1993, p. 58). Using the self portrait, each child is asked if he/she can write anything else and if so the words are written on the back of the page;
5. Code Identification (Justice, Invernizzi, Geller, Sullivan & Welsch, 2005). This task involves discriminating pictures, words, letters and numbers.
6. Alphabet Identification (McKenna & Stahl, 2003). An alphabet chart depicting a mix of uppercase and lowercase letters comprising 44 letters is used. This set of letters uses only those that are different in configuration e.g. only one letter C or c is on the card, not both uppercase and lowercase as they do not differ in configuration, just size;
7. Concepts about print using the children's text *Seven More Sleeps* by Margaret Wild (2006). The story is shared with each child and throughout the story questions concerning concepts about print are asked (Clay, 1993; McKenna & Stahl, 2003).

Instruments used for the Post Test, 5 months later in November included:

Items 1 – 6 (as above)

7. A new children's text, *Tom's Cat* by Charlotte Voake (1986) was used for Concepts about print (Clay, 1993; McKenna & Stahl, 2003);
8. An additional task was added for recognition of Environmental Print. This task was added at the request of the teachers to ascertain how well the children had retained knowledge of environmental print that had been used in class. The researcher chose the words in fairness to both teachers as there was some variation of environmental print that was used in each class.

Pre and mid-term semi-structured interviews

Teacher Interview 1 was conducted individually prior to the commencement of the study. Information was sought regarding teacher perceptions of the influences on and ways young children learn to be literate; current practices and parent education for language and literacy education and assessment strategies used to determine children's current literacy understandings.

Teacher Interview 2 was conducted midway through the study and the teachers were interviewed together. Information relating to the implementation of the current study including discussing details of what had been trialled and what was the perceived effect on the literacy learning outcomes for the children.

METHODOLOGY

Design-based research methodology was utilised for this study (Schoenfeld, 2006). This methodology “constitutes a means of addressing the complexity that is a hallmark of educational settings” (Cobb, Confrey, diSessa, Lehrer & Schauble, 2003, pp. 9). It allows us to view interventions as “enacted through the interactions between materials, teachers, and learners” (Design-Based Research Collective, 2003 pp. 5). This methodology also involves a continuous cycle where theory and practice are intertwined and it involves design, enactment, analysis, reflection and redesign (Cobb, 2001).

The study commenced with professional learning session for the teachers where emergent literacy and socio-cultural theories were introduced. Teachers then worked collaboratively with the researcher (design phase) to embed literacy-related activities into their existing play-based programs. An increased emphasis was placed on oral language opportunities for children, phonological awareness development and learning about print in the context of play (enactment phase) (Pullen & Justice, 2003). Baseline data were gathered from the children in June prior to the commencement of the study and these results were shared with the teachers (analysis phase). The results were then utilised to inform future planning. The teachers took part in telephone and face-to-face interviews (reflection phase) and ongoing communication was maintained using email, telephone conversations and visits by university personnel. At the end of each planning period teachers reflected on their practice and the children’s progress and a new cycle of design, enactment, analysis, reflection and redesign commenced. Five months later at the end of the preschool year post-test data were gathered.

Participants

Fifty preschool children participated in the study (21 female, Mean age: 5 years and SD 5.32) and (29 male, Mean age: 4 years 11 months and SD 3.79). The Mean age for the whole cohort was 5 years 11 months and SD of 4.49. The children ranged in age from 4 years 5 months to 6 years of age when the study commenced in May. For ease of handling the data, age ranges were created and the percentage of children in each age range was as follows:

4 years 5 months to 4 years 10 months – 28 children, 56% of the cohort;
 4 years 11 months to 5 years 5 months – 17 children, 34% of the cohort;
 5 years 6 months to 6 years – 5 children, 10 % of the cohort.

The teachers were both female and worked part-time at the school i.e. 5 days per fortnight (i.e. 3 days in week 1 and 2 days in week 2) as this was the attendance routine for the children participating in the study. One teacher had a Bachelor of Education degree and between 5 and 10 years experience while the other teacher had a Diploma in Teaching and had more than 20 years experience.

Information was sought from families in relation to parents’ education and occupation and the response rate for this information was 80%. Data for occupations were collated using Australian Standard Classification of Occupations (ASCO) 2nd edition as a guide (ABS, 1997). Categories for occupations were: 1. Professional; 2. Tradesperson & paraprofessional; 3. Sales/clerk; 4. Labourer/machinery operator and 5. Home duties;

Choices for the highest level education for parents and caregivers were analysed as follows: 1. University; 2. Technical and further Education (TAFE); 3. Year 12 and 4. Year 10. Tables 1 and 2 show this information.

Table 1

Parent Occupations

Parent Occupations	Frequency	Frequency	Percent	Percent
	Male	Female	Male	Female
Professional	3	4	6	8
Tradesperson/paraprofessional	26	7	52	14
Sales/clerk	3	10	6	20
Labourer/machinery operator	6	0	12	0
Home duties	0	18	0	36
Missing	12	11	24	22
Total	50	50	100	100

Table 2

Highest Level of Educational Achievement for Parents

Highest Education Level	Frequency	Frequency	Percent	Percent
	Male	Female	Male	Female
University	3	8	6	16
TAFE	15	9	30	18
Year 12	10	15	20	30
Year 10	9	8	18	16
Missing	13	10	26	20
Total	50	50	100	100

From the profile for parent occupations and highest level of education the sample for this study could be broadly classified as socio-economically lower/middle class.

PROCESSES

Phase 1: Initial semi-structured teacher interviews (via telephone).

These interviews sought teachers' perceptions of the influences on young children learning to be literate; their perceptions of preschool children's current understandings; literacy practices already used within their current programs and current parent education programs.

Phase 2: A full day of teacher professional development working with university personnel and planning literacy-related activities to be embedded within play-based programs.

Background information was provided to teachers prior to the session regarding emergent and socio-cultural theories and current research relating to developing emergent literacy understandings in preschool. The day commenced with an interactive input session from university personnel and part of the day was then available for planning ways of including literacy-related activities into the play-based programs (design phase).

Print resources were purchased for the teachers to assist them throughout the study and this included a set of books and copies of relevant journal articles. Two of the books were

published in Australia and five published by the International Reading Association (see Appendix A). The teachers both held very strong play-based philosophical views, but were convinced enhanced literacy learning activities could be incorporated into their programs.

Phase 3: Screening students to ascertain their emergent literacy understandings and sharing results with the teachers (analysis phase).

Phase 4: Teachers implementing literacy-related activities into their play-based programs and ongoing communication between teachers and university personnel (enactment phase).

Phase 5: Mid-term semi-structured teacher interview with (2 teachers together) including ongoing communication between teachers and university personnel (reflection phase).

Phase 6: The teachers commenced program planning again (redesign phase).

RESULTS

Pre and Post Screening Tasks

All screening tasks outlined earlier in the paper were conducted individually with each child. The researcher, support teacher from the school and preschool teachers were involved. To complete all seven screening tasks each child was involved in 3 short sessions of approximately 40 minutes duration. Results for the pre and post screening tests are shown in Table 3 and these provide a response to Research Question 1: *What is the effect on children’s emergent literacy understandings when literacy-related activities are embedded in play-based learning programs in preschool?*

Table 3
Comparing Pre and Post Screening Task Results

Screening Tasks	N	Min	Max	Mean	SD
Renfrew (pre)	50	9.00	41.00	24.44	7.46
Total SPAT (pre)	50	2.00	20.00	8.38	4.59
Code Total (pre)	50	.00	4.00	2.22	1.40
Alphabet Recognition (pre)	50	.00	44.00	12.56	13.09

CAP Total (pre)	50	.00	17.00	9.10	4.76
Renfrew (post)	49	12.00	42.00	29.18	7.43
Total SPAT (post)	49	3.00	20.00	13.28	4.72
Code Total (post)	49	1.00	4.00	3.16	1.17
Alphabet Total (post)	49	.00	44.00	22.63	14.51
CAP Total (post)	50	4.00	99.00	13.36	12.67

Results for recognition of Environmental Print including 5 coloured labels, 5 photocopied labels (i.e. the colour clues were not available for word recognition) and finally 5 labels printed with black ink on plain white word cards. Results depicting mean scores are shown in Table 4.

Table 4
Mean Scores for Environmental Print

Tasks	Mean Score
Coloured labels (5)	4.51
Photocopied labels (5)	3.97
Word cards (5)	0.89
Total (15)	9.34

Further correlation analyses of the children’s results were conducted to ascertain if any significant differences due to age range or gender could be established with pre-test and post-test results. For the pre-test a significant result was shown for the Renfrew [$p = .04$] with mean differences noted in the three age ranges. Mean for 4 yrs 5 months – 4 years 10 months = 22.53; mean for the 4 years 11 months to 5 years 5 months = 25.70 and the mean for the 5 years 6 months to 6 years = 30.80 thus demonstrating an increase in score with age.

Two significant effects were shown for the pre-test and gender. The first was for SPAT [$p = .02$] with girls achieving a higher mean score (10.09) than the boys (7.13). Similarly, a

significant effect was shown for Alphabet Recognition [$p \leq .00$] with a mean score of 18.66 for the girls compared to 8.13 for the boys.

For the post-test, a significant effect was shown for gender on just one measure and that was for SPAT with an overall mean score of 17.66 for the girls and 11.64 for the boys. No significant effects were shown for age range on any of the post-test results.

What is of interest is to examine and compare results for the pre and post tests for girls and boys and to examine the overall level of improvement. These results are shown in Tables 5-7.

Table 5

Comparing Mean Scores for the Pre and Post Screening Tests for the Whole Cohort

Task	Mean Score Overall Pre-test	Mean Score Overall Post-test	% Improvement
Renfrew (50)	24.44	29.18	19.39%
SPAT (20)	8.38	13.29	58.59%
Code (4)	2.22	3.16	42.34%
Alphabet Id (44)	12.56	22.63	80.18%
CAP (17 & 16)	9.10	13.36	46.81%

Table 6

Comparing Mean Scores for Girls for the Pre and Post Screening Tests

Task	Girls – Mean score Pre-test	Girls – Mean score Post-test	% Improvement
Renfrew (50)	26.47	31.55	19.19%
SPAT (20)	10.10	14.25	41.09%
Code (4)	2.57	3.45	34.24%
Alphabet Id (44)	18.67	26.80	43.55%
CAP (17 & 16)	9.24	16.19	75.22%

Table 7

Comparing Mean Scores for Boys for the Pre and Post Screening Tests

Task	Boys – Mean score Pre-test	Boys - Score Post- test	% Improvement
Renfrew (50)	22.97	27.56	19.98%
SPAT (20)	7.14	12.62	76.75%
Code (4)	1.97	2.97	50.76%

Alphabet Id (44)	8.14	19.76	142.75%
CAP (17 & 16)	9.00	11.31	25.67%

While results for all tests showed improvements over the 5 month period, boys' results are particularly noteworthy. When results are compared with those of the girls some outstanding levels of improvement can be seen. Alphabet recognition improved by 142.75% and Phonological awareness (SPAT) by 75.75%. While the mean scores for the girls remain higher than those achieved by the boys, the margin of difference was reduced. So in response to Research Question 1: *What is the effect on children's emergent literacy understandings when literacy-related activities are embedded in play-based learning programs in preschool?* It would appear that the activities included in the preschool program made a difference to the children's literacy understandings. Further observational information also was gathered from teachers during the mid-term interviews and this information supports the positive effect shown in the pre-test/post-test results.

PROGRAMMING

As far as incorporating literacy-related activities into their play-based programs both teachers chose to focus on developing literacy understandings using Environmental Print found within the community and homes of the children. Teachers found the text by Prior and Gerard (2004) to be one that included many practical ideas that they could trial. They commenced the program by sending a large plastic bag home with the each child with a letter asking parents to place any labels, photos etc. in the bag where the child could recognise some print and then return the bag to preschool. Parents and the children responded very positively to this request and each child returned the bag with many labels and photos included. The teachers then spent many hours collating and sorting the labels so they could make games and activities using the environmental print from the children's homes and community. The reaction to the activities (bingo; concentration; matching games etc.) from the children was extremely positive and it surprised the teachers. Parents too remained enthusiastic and kept sending additional labels for the bags as children began to recognise more words in the community. New ideas were generated by the teachers and from suggestions made by the children and these included socio dramatic play associated with setting up a shop in one preschool unit and a

restaurant in the other. Each of these play-contexts created more opportunities for purposeful oral language interactions and literacy-related activities.

Teacher Interviews

Data from the mid-term interview conducted with both teachers provides information for responding to Research Question 2: *How do teachers perceive children's literacy learning during the study* and Research Question 3: *What are the teachers' personal reflections on their own learning during the study?*

The teachers could recall numerous instances where they perceived an increase in the interest shown by the children in learning about print during the first six weeks of the study. They remained firm in relation to maintaining a play-based philosophy and not formalizing the teaching. "They are playing board games and bingo and all the while they are reading words and learning as they are doing it and because they are having fun it doesn't seem like work for them." The teachers reflected on their current teaching routines "We are asking them now – where do you start and we are actually making it a proper teaching experience for them."

The teachers noticed that the children not only seemed to be gaining confidence with reading, but there was a flow-on effect with writing as well. "I have also found that it has transferred into their writing and the majority now are putting their finger on the left hand side to start writing." Further demonstrations by the teachers during shared book experience are making phonological awareness explicit. "We are making sure that we do syllable clapping, rhyme recognition and rhyme production and some seem to have focused on punctuation. They are really into what the different dots mean and semi colons and exclamation marks and they now recognise question marks."

Further reflections by the teachers revealed a more thoughtful approach to language and literacy learning. "We are being more focused and explicit on what we are doing rather than just thinking to gloss over it as if it can be done in Year 1. It is all about knowing to expect a little more. We are just giving them a better foundation, a better appreciation of all the skills they will need to succeed with literacy." A question was asked about their

perceptions of the language the children were now using. “I don’t know necessarily if the amount of language has increased. Possibly their vocabulary might have increased a little bit because we are making it specific as they play in a restaurant or a shop. In other parts of the interview one teacher had talked about the children wanting a ‘surveillance camera,’ a ‘credit card,’ a ‘drive through,’ ‘coupons’ and a ‘cash register’ all for the restaurant so the children were using vocabulary well beyond that used in everyday interactions. Finally, one teacher added this comment about the children playing within the centre. “I was going to say there is more print now and they are keener to go off and write some things down when normally they would just play. They seem keener if there is some paper there to have a go.”

So in relation to the teachers’ perceptions of the children’s literacy learning there were many examples that were raised during the interview as evidence that the children had adopted ways of including the use of print into their play and that demonstrations from the teachers were being enacted in many different ways. As far as the teachers’ personal reflections on their own learning was concerned, they spoke of a change in emphasis in that they became more explicit with their demonstrations and emphasised aspects of the pre-test where they noted the children still had much to learn e.g. learning to identify a word, a letter and a number or being able to produce a rhyming word etc.

DISCUSSION

In responding to the findings in relation to the research questions many important issues have been highlighted. The study has shown that early childhood programs based on a play-based philosophy can include embedded literacy-learning activities and the young children from lower to middle class backgrounds in this study have demonstrated how they have embraced the experiences and learnt much from them (Beecher & Arthur, 2001; Roskos & Christie, 2001). Teachers’ perceptions of the children’s literacy learning also were very positive and many observations of the children’s demonstrations of learning were recalled. The teachers also were willing to reflect on their own learning and think deeply about the experience. Learning to make literacy learning explicit was a valuable insight gained by the teachers and this was learned as they had the opportunity to work with new knowledge and new ideas in their own class context while being mentored.

Without a lot of additional costs for resources beyond the books provided for the teachers, this study has shown what can be achieved by using artefacts that are readily available in the home and community. By seeking the support of parents in gathering print resources, the teachers raised awareness that the children were learning about print and how it works. Results support those of other researchers as the young children demonstrated their capabilities for learning about the sounds and words of the language, and print in the home, preschool and wider community (Neuman, 2004; Pullen & Justice, 2003).

These results again highlight how policy within Australia needs to reflect these practices in order to assist all children to gain a strong foundation for early literacy learning. Building confidence via demonstrations and experiential learning works and children can gradually learn from others, their environment, teachers and parents (Morrow, 2005). With explicit demonstrations and the availability of pencils, felt markers, paper, magazines and signs children will readily use what is available and build these resources into the context of their play (Schickedanz & Casbergue, 2004).

The results demonstrate how observant young children really are and that their capabilities can be extended beyond the expectations of most adults. Children are constantly increasing their vocabulary, learning from others, using language to get things done and all the while finding out about symbol systems in the everyday world.

The two experienced teachers in this study worked tirelessly to embed literacy-learning opportunities within a play-based program and became increasingly enthusiastic as they began to observe the effects of their demonstrations. Working collegially was most beneficial as planning ideas seemed to be generated more readily while working together (Poulson & Avramidis, 2003). The two teachers were constantly researching, reading and problem solving as they planned activities and extended upon ideas suggested by the children. A very positive learning environment was evident in this centre and this was sustained by the two teachers. As a professional learning experience the results from this study are very positive. The teachers themselves recognised that previous pedagogical practices may not have been explicit enough and that language demonstrations may have had a reduced impact. Also, it is recognised the study was limited by using print-based literacy strategies and activities however this occurred because just one, very old computer was in each centre and these were not networked.

The teachers acknowledged baseline data to identify the literacy understandings children already hold can be used to great advantage for effective planning (Clay, 1993). Very often educators underestimate the knowledge that young children possess or ignore cultural and family experiences and how these contribute to a child's life. While not all screening measures can be regarded as effective, the teachers in this study were very interested in the results of the pre-tests and used the information to plan experiences for the children and extend upon their existing knowledge (Heidemann, Chang & Menninga, 2005).

IMPLICATIONS AND RECOMMENDATIONS FOR PRACTICE

The results have implications beyond the context in which this study took place and some valuable lessons have been learnt in relation to both the teachers and young children. One limitation of the study was that the literacy-related activities were limited to print-based resources and future studies need to include a broader range of texts including multi-modal and online texts.

For teachers, professional learning opportunities appear to be most beneficial and effective when there are opportunities to return to the classroom and apply new learning. Teachers in this study embraced well chosen resources that provided practical ideas associated with theories of learning. Working with a colleague was beneficial as it generated enthusiasm and creativity when planning. Teachers need data about children in order to plan effectively for learning, otherwise the perceptions held may be false and teachers can underestimate or overestimate children's prior knowledge, life experiences and existing capabilities.

For children, they need ongoing experiences where texts are shared, modelled and composed. Adult demonstrations and the provision of a broad range of resources and experiences are most important for engaging children in conversations and play where opportunities arise for enhancing young children's knowledge and understanding of spoken and written texts. Young children deserve every opportunity to learn to be literate in the early years of schooling and "failing to give children literacy experiences until they reach school can severely limit the reading and writing levels they ultimately attain (IRA, NAEYC, 1998 p. 197).

REFERENCES

- Aarnoutse, C., vanLeeuwe, J., & Verhoeven, L. (2005). Early literacy from a longitudinal perspective. *Educational Research & Evaluation, 11*(3), 253-275.
- Australian Bureau of Statistics. (1997). Australian standard classification of occupations. (ASCO) (2nd ed.). Retrieved February 14, 2006 from Australian Bureau of Statistics Web site: <http://www.abs.gov.au/Ausstats/abs@.nsf/0/5c244fd9d252cfc8ca25697e00184d35?OpenDocument>
- Badian, N. (1994). Preschool prediction: Orthographic and phonological skill, and reading. *Annals of Dyslexia, 44*, 3-25.
- Beecher, B., & Arthur, L. (2001). *Play and literacy in children's worlds*. Newtown, NSW: Primary English Teaching Association.
- Blatchford, P., Burke, J., Farquar, C., Plewis, I., & Tizard, B. (1987). Associations between preschool reading related skills and later reading achievement. *British Educational Research Journal, 13*(1), 15-23.
- Bowman, B., Donovan, M., & Burns, S. (Eds.). (2001). *Eager to learn: Educating our preschoolers*. Washington, DC: National Academy Press.
- Britto, P. (2001). Family literacy environments and young children's emerging literacy skills. *Reading Research Quarterly, 36*(4), 346-347.
- Clay, M. (1993). *An observation survey of early literacy achievement*. Portsmouth, NH: Heinemann.
- Cobb, P. (2001). Supporting the improvement of learning and teaching in social and institutional contexts. In S.M. Carver & D. Klar (Eds.), *Cognition and instruction: Twenty-five years of progress* (pp. 455-478). Mahwah, NJ: Erlbaum.
- Cobb, P., Confrey, J., diSessa, A., Lehreer, R., & Schauble, L. (2003). Design experiments in educational research. *Educational Researcher, 32*(1), pp. 9-13.
- Crone, D. A., & Whitehurst, G. J. (1999). Age and schooling effects on emergent literacy and early reading skills. *Journal of Educational Psychology, 91*(4), 604-614.
- Department of Education, Science and Training (DEST). (2005). *Teaching reading*. Canberra, ACT: Author.
- Designed-Based Research Collective. (2003). Design-based research: An emerging paradigm for educational inquiry. *Educational Researcher, 32*(1), pp.5-8.
- Department for Education and Skills, *The Standards Site (DfES)*. (n/d). Primary framework for literacy and numeracy. Retrieved April 7, 200 from DfES Web site: <http://www.standards.dfes.gov.uk/primaryframeworks/?version=1>
- Dickinson, D., McCabe, A., & Essex, M. (2006). A window of opportunity we must open to all: The case for preschool with high-quality support for language and literacy. In D. Dickinson & S. Neuman (Eds.), *Handbook of early literacy research: Volume 2* (pp. 11-28). New York: The Guilford Press.
- Dickinson, D., & Tabors, P. (1991). Early literacy: Linkages between home, school and literacy achievement at age five. *Journal of Research in Childhood Education, 6*(1), 30-46.
- Gillen, J., & Hall, N. (2003). The emergence of early childhood literacy. In N. Hall, J. Larson & J. Marsh (Eds.), *Handbook of early childhood literacy* (pp. 3-12). London: Sage Publications.
- Hall, N., Larson, J., & Marsh, J. (Eds.). (2003). *Handbook of early childhood literacy*. London: Sage Publications.
- Heidemann, S., Chang, C., & Menninga, B. (2005). When teachers are learning, children are too: Teaching teachers about assessment. *Young Children, 60*(3), 86-92.
- Hill, S. (2004). Privileged literacy in preschool. *Australian Journal of Language & Literacy, 27*(2), 159-171.
- Hill, S., Comber, B., Loudon, W., Rivalland, J., & Reid, J. (1998). *100 children go to school*. Canberra: Department of Employment, Education Training and Youth Affairs.

- International Reading Association, & National Association for the Education of Young Children. (1998). Learning to read and write: Developmentally appropriate practices for young children. *Reading Teacher*, 52(2), 193-216.
- Juel, C. (1988). Learning to read and write: A longitudinal study of 54 children from first through fourth grades. *Journal of Educational Psychology*, 80(4), 437-447.
- Justice, L. M., Invernizzi, M., Geller, K., Sullivan, A. K., & Welsch, J. (2005). Descriptive-developmental performance of at-risk preschoolers on early literacy tasks. *Reading Psychology*, 26(1), 1-25.
- Kennedy, A., Ridgway, A., & Surman, L. (2006). 'Boundary crossing': negotiating understandings of early literacy and numeracy. *Australian Journal of Early Childhood*, 31(4), 15-22.
- Lynch, R. (2004). Exceptional returns: Economic, fiscal and social benefits of investment in early childhood development. Washington, DC: Economic Policy Institute.
- Makin, L. (2003). Creating positive literacy learning environments in early childhood. In N. Hall, J. Larson & J. Marsh (Eds.), *Handbook of early childhood literacy* (pp. 327-337). London: Sage Publications.
- Marsh, J., Brooks, G., Hughes, J., Ritchie, L., Roberts, S., & Wright, K. (2005). *Digital beginnings: Young children's use of popular culture, media and new technologies*. Sheffield, UK: Literacy Research Centre, University of Sheffield.
- McKenna, M. C., & Stahl, S. A. (2003). *Assessment for reading instruction*. New York: The Guildford Press.
- Meiers, M., & Forster, M. (1999). *The ACER longitudinal literacy and numeracy study (LLANS)*. Paper presented at the ACER Research Conference: Improving Literacy Learning - What does Research tell us?, Adelaide.
- Ministerial Council on Education Employment, Training and Youth Affairs (MCEETYA). (n/d). National Report on Schooling in Australia, Preliminary Paper: National Benchmark Results Reading, Writing and Numeracy Years 3, 5 and 7. Retrieved March 30, from MCEETYA Web site: <http://www.mceetya.edu.au/mceetya/default.asp?id=18247>
- Morrow, L. M. (2005). Language and literacy in preschools: Current issues and concerns. *Literacy Teaching and Learning*, 9(1), 7-19.
- National Center for Education Statistics. (1995). *Approaching kindergarten: A look at preschoolers in the United States*. United States: Department of Education, Office of Educational Research Improvement.
- Neilson, R., (2003). Sutherland phonological awareness test – revised. Camberwell, VIC: ACER.
- Neuman, S. B. (2004). The effect of print-rich classroom environments on early literacy growth. *Reading Teacher*, 58(1), 89-91.
- Oliver, B. R., Dale, P. S., & Plomin, R. (2005). Predicting literacy at age 7 from preliteracy at age 4. *Psychological Science*, 16(11), 861-865.
- Pianta, R.C. & McCoy, S. J. (1997). The first day of school: The predictive validity of early school screening. *Journal of Applied Developmental Psychology*, 18(1) pp. 1-22.
- Poulson, L., & Avramidis, E. (2003). Pathways and possibilities in professional development: Case studies of effective teachers of literacy. *British Educational Research Journal*, 29(4), 543-560.
- Pullen, P. C., & Justice, L. M. (2003). Enhancing phonological awareness, print awareness, and oral language skills in preschool children. *Intervention in School & Clinic*, 39(2), 87-98.
- Prior, J., & Gerard, M. (2004). *Environmental print in the classroom*. Newark, DE: International Reading Association.
- Purcell-Gates, V. (1996). Stories, coupons, and the TV guide: Relationships between home literacy experiences and emergent literacy knowledge. *Reading Research Quarterly*, 31(4), 406-428.

- Queensland Studies Authority (QSA). (2006). Early years curriculum guidelines. Retrieved February 22, 2006 from QSA Web site: http://www.qsa.qld.edu.au/early/curriculum_guidelines/index.html
- Razfar, A., & Gutierrez, K. (2003). Reconceptualising early childhood literacy: The sociocultural influence. In N. Hall, J. Larson & J. Marsh (Eds.), *Handbook of early childhood literacy* (pp. 34-47). London: Sage Publications.
- Renfrew, C. E. (1995). *Word finding vocabulary test*. Oxon, UK: Speechmark
- Rose, J. (2006). *Independent review of the teaching of early reading*. Retrieved April 10, 2007 from DfES Web site: <http://www.standards.dfes.gov.uk/phonics/earlyreading/>
- Roskos, K., & Christie, J. (2001). Examining the play-literacy interface: A critical review and future directions. *Journal of Early Childhood Literacy*, 1(1), 59-89.
- Roskos, K., & Vukelich, C. (2006). Early literacy policy and pedagogy. In D. Dickinson & S. Neuman (Eds.), *Handbook of early literacy research: Volume 2* (pp. 295-308). New York: The Guilford Press.
- Schickedanz, J. A., & Casbergue, R. M. (2004). *Writing in preschool: Learning to orchestrate meaning and marks*. Newark, DE: International Reading Association (IRA).
- Schoenfeld, A.H.(2006). Design experiments. In J. L. Green, G. Camilli, P. Elmore, A. Skukauskaite, & E. Grace (Eds.), *Handbook of complementary methods in education research* (pp. 193-205). Mahwah, NJ: Erlbaum.
- Shonkoff, J., & Phillips, D. (2000). *From neurons to neighborhoods: The science of early childhood development*. Washington, DC: National Academy Press.
- Snow, C., Burns, S., & Griffin, P. (Eds.). (1998). *Preventing reading difficulties in young children*. Washington, DC: National Academy Press.
- Ure, C., & Raban, B. (2001). Teachers' beliefs and understandings in the preschool: Preschool literacy project stage 1. *Contemporary Issues in Early Childhood*, 2(2), 157-168.
- Voake, C. ((1986). *Tom's cat*. London: Walker Books.
- Weinberger, J. (1996). A longitudinal study of children's early literacy experiences at home and later literacy development at home and school. *Journal of Research in Reading*, 19(1), 14-24.
- Wild, M. (2006). *Seven more sleeps*. Kingswood, SA: Working Title Press.
- Young, J. (2002) *Mapping literacy progress: Preschool to year 1*. Paper presented at 19th World Congress on Reading, Edinburgh, Scotland.
- Young, J. (2004). *Growing into literacy: Emergent literacy understandings prior to school*. Paper presented at the Australian Association for Research in Education (AARE) Conference, Melbourne, VIC.

APPENDIX A
RESOURCES PURCHASED FOR TEACHERS

- Barratt-Pugh, C., Rivalland, J., Hamer, J., & Adams, P. (2006). *Literacy learning in Australia: Practical ideas for early childhood educators*. South Melbourne, VIC: Thompson Dunmore Press.
- Beecher, B., & Arthur, L. (2001). *Play and literacy in children's worlds*. Newtown, NSW: Primary English Teaching Association.
- Prior, J., & Gerard, M. (2004). *Environmental print in the classroom*. Newark, DE: International Reading Association.
- Roskos, K., Tabors, P., & Lenhart, L. (2004). *Oral language and early literacy in preschool: Talking, reading and writing*. Newark, DE: International Reading Association (IRA).
- Schickedanz, J. A., & Casbergue, R. M. (2004). *Writing in preschool: Learning to orchestrate meaning and marks*. Newark, DE: International Reading Association (IRA).
- Strickland, D., & Schickedanz, J. (2004). *Learning about print in preschool*. Newark, DE: International Reading Association.
- Vukelich, C., & Christie, J. (2004). *Building a foundation for preschool literacy: Effective instruction for children's reading and writing development*. Newark, DE: International Reading Association (IRA).