LITERACY ACQUISITION FOR PRE-PRIMARY STUDENTS:
REPORT ON THE FIRST YEAR OF IMPLEMENTATION

FOR
WAARDI LTD

PREPARED BY
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1. Background

It has long been known that if students fail to make effective progress with learning to read and write during their early years in school, they fall further behind their peers and experience increasing difficulty in gaining from their school experiences. Without adequate literacy skills, students fail to engage with the print-based curriculum, which is at the centre of school and continuing education. As a result, these students are seriously disadvantaged in a literate society. Unfortunately Indigenous students in the Kimberley are considered to be a highly vulnerable group and have consequently been identified as at-risk of educational failure. This research aims to redress the literacy achievement of Kimberley students in the early years through a holistic classroom approach involving processes of prevention and early intervention.

The Literacy Acquisition for Pre-Primary Students (LAPS) program has its origins in the Language, Learning and Literacy (L3) intervention program designed to meet the learning needs of students in low Socio-Economic Status Schools in NSW (NSW DET, 1999-2000). The L3 teaching program is designed to meet the literacy learning needs of students who do not bring a rich literacy background to their first year of school. Students receive explicit instruction in reading and writing in small teaching groups. Students then rotate to independent individual or group tasks. The program’s goal is to reduce the need for more intensive and resource demanding programs in future years, including Reading Recovery.

An adaption of the L3 program was first piloted in Kimberley schools in semester two 2014, funded by Waardi Limited. Intensive consultation with the selected schools’ administrators and Pre-primary teaching teams was undertaken before the implementation of the program. Insights from the pilot program informed the development of the LAPS program and enabled the program to be contextualised to meet the requirements of Kimberley schools while maintaining a clear focus on language development and text reading and writing. The implementation of the LAPS in 2015 continued to adhere to the recommendations provided during the consultation phase, keeping a grass roots ownership focus on the program, contributing to the successful engagement of participant schools.

The LAPS program developed and implemented in the Kimberley in 2015 has a number of key design features:

1. Students receive daily explicit small group literacy teaching.
2. Teachers select from a range of teaching approaches, explicitly designed to strengthen students’ language skills and experiences with books and to foster reading and writing acquisition processes.

3. Teachers’ analysis of assessment data is used to plan and guide instruction.

4. The professional learning program engages teachers in whole class off-site sessions and on-site school team professional learning, alongside regular coaching and modelling in classrooms.

The LAPS program targets teachers and teaching support staff, including Aboriginal Teaching Assistants of Pre-primary students, in order to strengthen classroom practice to support young learners to reach national, state and school-based curriculum targets and goals.

2. Research design

During 2015, the researchers worked with three schools and the Professional Learning Facilitator to -

1. Monitor the design of professional learning program for teachers;

2. Measure the effectiveness of the professional development program on classroom practices; and

3. Assess the impact of the program on students’ literacy learning outcomes, with data collected at the beginning and end of the school year.

Research participants

Principals, teaching staff and students from three primary schools, each located in a town setting, participated in the research study of the LAPS program. Informed consent to participate the study was obtained from

- 8 Teachers
- 9 Education Assistants and Aboriginal Teaching Assistants
- 118 students
- 3 Principals and 1 Literacy Coordinator
- 1 Professional Learning Facilitator (PLF)

*Note: In total XXX students engaged in the program with parent consent for data collection obtained from 118 students.*
Data collection

A range of data sources were collected and analysed to evaluate the impact of the program on teachers and students.

Student achievement data were collected to measure students’ growth in literacy learning. The assessment tools used were negotiated with the principals and teachers to align with existing data collection processes and avoid duplication of assessment tasks. Three measures were used at the beginning and end of the school year, these were -

- Running records to assess students’ independent reading levels (Clay, 2013);
- Phonological Awareness test items drawn from a range of assessment tools used by participating schools; and
- Concepts about Print (Clay, 2013).

Teachers collected the data and de-identified lists of test scores were provided to the research team. Attendance data was also provided.

Interviews with teachers, support staff and the school leadership teams were designed to explore elements of the professional learning program and the impact of the program at each of the sites.

Teacher evaluations after each in-service session were also collected and collated. Teachers were asked to comment on the content, structure, presentation and resources provided. They were also given the opportunity to detail intended actions based on their learning and to identify focus areas for future sessions. Aggregated summaries of the teachers’ evaluations were made available to the research team.

Journal notes kept by the Professional Learning Facilitator (PLF) that detailed her work with teachers were also accessed. Journal entries noted the PLF perceptions and insights into the effectiveness of learning opportunities provided and the impact of the LAPS program on teachers’ practice.

Ethics

The research was undertaken with ethical approval from Monash University’s Human Research Ethics Committee, Catholic Education Western Australia and the Department of Education Western Australia. Informed consent from participating school principals, teachers and teacher assistants was ascertained. In addition, parental approval was sought for the collection of students’ data. It was made clear to teachers and parents that the implementation of LAPS was a school-based
decision and that participation in the LAPS program was not dependent on their consent to take part in the research project.

3. Results

The design of the Professional Learning Program

Careful consideration was given to the content, learning sequence and model of professional learning, with principals' and teachers' input into the design of the program. The three off-site sessions were formally evaluated by the teachers, with interview data and the PLF’s journal providing further details of the design and implementation of the professional learning program.

Offsite Professional Learning sessions

The aim of the first session was to provide an overview of the LAPS program, its procedures, routines and the data collection process. Overall, the feedback from the first session suggested that the content suited the teachers' needs, that the program was well structured and engaging and that the teachers were provided with useful resources. See, for example, the teacher comment below.

*I am confident to use LAPS strategies in my class. I am excited to get back into the classroom and start! I have developed a good understanding of the project.* (Comment from aggregated teacher session evaluations.)

Despite the very positive responses participants noted they would like to be provided with more details of the philosophy/pedagogy underpinning the LAPS program, how LAPS relates to the Australian curriculum, and that there were concerns regarding the workload associated with the program data collection procedures.

The feedback regarding the second LAPS professional learning session was similar with all the teachers rating the content, structure, presentation and resources as either 'good' or 'excellent' with one teacher regarding the content as 'satisfactory'. Evaluations collected after the session indicated that the teachers understood the guided and interactive writing matrix, had a firm grasp of the differences between reading levels 3, 4 and 5 and felt confident in their goal setting skills. The reactions to the second LAPS professional learning session by the teachers was positive as evident from the following excerpts from the teachers’ evaluations.

*I have set some reachable goals for my kids. I’m ready for guided reading and have SMART goals set. I feel I have a better understanding of interactive writing and guided reading.* (Comment from aggregated teacher session evaluations.)
Always walk away feeling I have gained more knowledge, love the discussion and hands-on activities. These sessions are valuable, motivated and ready to get started in guided reading. (Comment from aggregated teacher session evaluations.)

The teachers reported at the end of the second session that they would like to know more about Guided Reading in larger group sizes (for example, with 6 students), how others timetabled the LAPS program, the progressions within Guided Writing and the move towards independent writing. The Reading To Students section was reported to have been covered too briefly as the teachers’ responses during this part of the session indicated that only some of those undertaking the session had an understanding of this procedure. These teacher comments were respected and in response the PFL arranged for an additional professional learning activity to clarify the Reading To Students procedure, review instructional processes to support the shift to independent writing and the sharing of timetabling procedures. Feedback collected regarding the most beneficial elements of the LAPS program (for example, planning time, Guided Reading, Guided Writing activities) were also important, with this feeding into plans for ongoing professional learning.

In regards to the third and final session of the LAPS professional learning program, all the staff rated the content, structure and presentation of this session as either “good” or “excellent.” When asked if they would like to participate in the LAPS ongoing professional learning next year, all the staff responded positively. The teachers’ feedback at the conclusion of the final session indicated they valued the information regarding classroom strategies, they felt more equipped to create structured lesson plans, cater for individual students’ needs, they had a greater understanding of Guided Reading, knew how to extend their students to reach reading and writing goals and that they felt confident to continue the LAPS program. The following comments are from the aggregated teacher evaluations of the professional learning sessions.

I always find the LAPS professional learning supportive and helpful for my teaching. Content is always professional and meaningful.

Found LAPS very resourceful and I am looking forward to implement in my own classroom so I can integrate.

Thank you so much for this fantastic opportunity. I have become a lot more confident in delivering an effective literacy program to my pre-primary students.

The principal interview data reinforced the positive views of the professional learning program. All of the principals interviewed indicated that the training provided to
teachers and teacher assistants through the LAPS program increased their professional knowledge and skill base. In particular, one principal reported that the teachers’ knowledge of how to effectively teach reading and writing developed throughout the duration of the LAPS program. Indeed, the model of professional development, including staff coaching in a classroom setting and ongoing support was identified as a strength of the LAPS program. In addition, the LAPS professional learning program was also deemed to have had a positive impact on the teachers’ confidence, with principals reporting that their staff felt more confident in their capacity to help their students become ‘literacy ready’. One of the principals interviewed stated that they suspected that this increase in professional confidence was a result of recognising and feeling proud of the academic gains made by their students during their participation in the LAPS program. The self-reflection and self-assessment of their teaching practice was also reported to be important for building the confidence and competence of the teachers.

During the interviews, the teachers reported that the professional learning program was relevant and in touch with the experience of teaching in the Kimberley. The skills and strategies introduced through the program were reported by many teachers to be useful and to consolidate previous professional learning. The interview comments below are evidence of the effectiveness of the learning program.

Interviewer: Okay, good, so the professional learning has been useful?

Teacher: Yeah, it wasn’t a PL we go gosh I’ve got to go to that but it was actually something we really look forward to (Teacher 7).

And I think it was good having the [professional learning sessions] staggered rather than just hitting you with three days at the beginning of the year because it gave you a chance to take something away, digest it, use it and then come back and go okay, I’m ready for something else to rather than just hitting you it was great to stagger it and grow as you grew (Teacher 7).

The facilitator of the professional learning program was also reported by all of the teachers to be an asset to the program and it was specifically reported that the PLF created an excellent learning environment for teachers; this was described as gentle, supportive and informative.

**School Based Professional learning**

The regular contact with the PLF, the provision of teaching support and use of a coaching model were reported to be the strengths of the LAPS professional learning program. In particular, the majority of the teachers interviewed noted the coaching
model, the opportunity to observe teaching practice, collaborative planning, receiving constructive feedback and support as the strengths of the professional learning program. The planning sessions in particular were perceived as valuable as all the teaching staff were informed as to the students’ development, their individual goals and what needs to be done in order to achieve these goals. This in turn was reported to have increased the communication between the relevant staff, as detailed by a teacher participant below:

_The planning sessions have been really good. We just had a planning session last week and at this time of the year you go oh, another meeting, you know, and that's what it feels like but you go into the planning sessions so [teachers name] and I will both go in and the two support teachers go in and everybody comes out on the same page. Everybody knows where the kids are, where the kids need to go and what they need to do_ (Teacher 5).

Similarly, in regards to the on-site professional development provided to support staff, including Aboriginal Teacher Assistants, all the principals reported that these sessions were valuable and that they had received positive feedback from their staff. Principals reported that the staff perceived these sessions to provide simple and applicable strategies which were useful in classrooms. Having a teacher and an assistant who both understand the program improved the success of implementation. All the Education Assistants who undertook the professional learning program found it to be beneficial. An excerpt from an Education Assistant’s interview in response to the professional learning program is included below.

_I got a lot out of all of it, I really enjoy doing the whole course actually, yeah, it was good_ (Education Assistant 8).

However, through the interviews it became apparent that only some of the Education Assistants undertook the professional learning. This was unfortunate as the interviews with both the teachers and Education Assistants indicated the integral role support staff play in the implementation of the LAPS program. The interview excerpt below indicates the important role of Education Assistants in managing a classroom so that the LAPS classroom teaching approaches program can be effectively implemented.

_I think that needs to be highlighted perhaps a little bit with it and you also need the structure of the classroom to make sure you've got appropriate activities in place. You know, for the rest of the class. They are independent, focused, but also the noise factor so you can hear the kids’ reading as well because you don't want them sitting on a table next to you screaming and squawking we can’t actually hear the kids and that you are distracted_ (Education Assistant 4).
In regards to the content for the ongoing professional learning program, intended to be implemented in 2016 the participants indicated that the useful areas of focus would be further opportunities to analyse and moderate assessment data, attention to planning and timetabling, the sharing of ideas and resources, reflections on practice, and inclusion of English as Additional Language/Dialect (EAL/D) considerations. Another suggestion was to incorporate a theoretical platform of how children learn in the program.

In addition to these considerations, the PLF also suggested that monitoring the students’ progress and goals, including an observation week every five weeks, monitoring communication between staff and developing focus questions to guide the school visits as important for future professional learning programs.

While all principals reported that the content of the program was excellent it was suggested that the oral language component was an element of the program that could be improved. Further, although the majority of the principals, teachers and teacher assistants interviewed indicated that the LAPS program had a positive impact on ‘at risk’ students, a challenge presented was for some closer attention to be paid to more transient students, who as a result of circumstances have very limited reading and writing experiences as a basis for learning.

Overall, the qualitative data indicates that involvement in the LAPS program and associated professional learning program resulted in positive benefits for the professional development of teachers, Education Assistants and Aboriginal Teaching Assistants.

Both the on and off site professional learning were considered to be valuable as indicated through the following interview excerpt:

_Both of them were [on and off site professional learning]. They complemented each other. You needed both_ (Teacher 8).

Specifically, the LAPS professional learning program was considered to be effective as it was practical, focused on developing the students’ foundational skills in reading and writing and included relevant examples such as demonstration videos. The program was found to be useful as it provided the teachers with opportunities to collaborate and share ideas and strategies with other professionals working in the Kimberley.
Impact of teacher professional learning program on classroom practices

The teachers reported that the LAPS program had assisted in making their teaching more structured and organised in addition to having a positive impact on their confidence and skill levels. The LAPS program was reported by the teachers to have improved their teaching skills and that through participation in the program they had learned a lot about teaching literacy. Many teachers reported that the skills and strategies acquired through the LAPS program are now embedded in their approaches to teaching. An additional benefit of the professional learning program was the access to resources such as reading texts, dictionaries and individually tailored reading resources for individual students. Principals also commented that teacher participation in LAPS had created improved learning environments. A quote from one of the principals that demonstrates the impact of the LAPS program is included below.

*LAPS has unified the staff and the practice, management operational practices we put into place to support that, but the LAPS has been the vehicle that's glued I suppose the staff given that common foundation from which to work* (Principal 1).

This review of the documentation relating to the LAPS professional development program resulted in several findings regarding the effectiveness of this professional development program on classroom practices. During the second session of the LAPS professional learning program the teachers were asked to discuss their progress. The teachers reported that they were becoming skilled at implementing the program procedures and strategies and that the LAPS program was being used extensively. It was reported that the students were excited about learning and that they were making good progress. Specifically, the students were reported to be making progress with their letter formation, transferring sight word knowledge, working more independently and to have increased their engagement in learning practices. The following excerpts are from the teacher interviews, as illustrative examples of their experiences of implementing the LAPS strategies.

*They are responding to this and by giving them that structure to start with, their independent writing came on really quickly, and it's almost as if they got lots of information at the beginning in a structured way and then they freed themselves to write whereas I thought it would have the opposite effect that when we gave them independent writing they would be like on their own I can't do it, but it worked very well* (Teacher 1).

*Oh, we use reading to students, the shared, the interactive writing, we do all [that] has been shown us* (Teacher 3).
I try to do interactive writing. Once they are in the routine of that it's just amazing what they can do. When I first saw it I was very confronted going oh my children can't do that, but now I've got them in the routine of doing interactive writing they ask me why I haven't done it that day… Guided reading, I try to do three times a week, so I use that, all the time and use the strategies…I talk to parents about what we do for guided writing because they obviously are a bit confused by it sometimes (Teacher 4).

During the observations and discussion with teachers, a range of issues regarding the implementation of the LAPS program were raised. The discussion below indicates the areas of concern and the ways issues were addressed throughout the year.

**Data collection**

The data collection process of the LAPS program involved two separate but related processes. Pre and post data was collected for the program evaluation, and to allow teachers to ascertain the starting points for instruction and to assess changes in student attainment levels. In addition, teachers were requested to review students’ reading levels, writing vocabulary and general progress every five weeks with this data reviewed by the PLF. The initial data collection process was reported by the teachers interviewed to be a time consuming and challenging process. However the advantages of the data, to inform explicit teaching was acknowledged. This is evident in the following interview excerpts:

It was challenging getting it all done in term one. I was quite exhausted, but it's essential. I told [Principal's name] that you need the data to base your program on. That's all the stepping stones. You know what you have to plan for and where the kids are at. If you don't have that you [would be] just hoping they would pick up the skills, and some of them they don't necessarily need or are ready for yet (Teacher 8).

I don't think - - what we have to do is actually challenging it in any other way but having time to do it and you always find that, because a lot of that data you need to do one-on-one but you've got another 23 children running around and ultimately that is always going to be the challenge (Teacher 1).

Indeed, the assistance of the PLF was reported during the interviews to have been an important element to the success of the data collection process. Although the data collection process was perceived to be time consuming there was evidence in the interviews that indicated the teachers were able to adjust to the workload demands as demonstrated through the following excerpt.

At first it was a lot of work, at the beginning, because we were doing online tests and doing the LAPS collection. We found it was a lot to do and we were really hoping if there was a way of merging this information so if we just do it once and we felt there were a few crossovers going on. Saying that, at the end of it, it was fantastic. Having all of that information to work with, to plan (Teacher 1).
A range of benefits were reported by the teachers to be associated with the data collection which underpins the LAPS program. Some of these benefits include evidence of the progression of the students’ learning and their grasp of the concepts presented through the curriculum, gaining an understanding of individual student needs, setting goals informed by the data and measuring student goal attainment, and enabling comparisons with other schools in the local area. Some of these benefits are demonstrated in the following teacher interview excerpts.

Oh, I love it when I can see the progression, particularly if you worked really hard on a particular concept or whatever. So now when I'm doing my reports I can sit down and go oh, my goodness, this child has moved up. You know, 29 - - recognises 29 more letters than they did at the beginning of the year and are transferring the concepts about printing and reading to their writing (Teacher 2).

I think all of this in between data for me because these start data was there but all of this in between getting the reading level, making goals for them, getting their phonological awareness, highlighting exactly where my class is lacking and being able to work towards those particular goals and students. To be able to set goals, explicit goals from the data (Teacher 4).

A range of suggestions were made in order to minimise the difficulties associated with the data collection process. Integrating the entry data with the data collected for the LAPS program rather than collecting multiple sets of data was recommended by a number of teachers. Another teacher stated that in their school they were funded to spend a few days collecting data whilst an additional teacher managed the classroom (Teacher 7). Another teacher suggested that to get the most out of the data that time is allocated to explore and discuss the findings (Teacher 2). Teacher comments also indicated that more frequent review of the student data would be beneficial and preferable to more regular assessment and that this should be considered in the future.

**Competing priorities**

A key point of resistance to the implementation of the LAPS program was that participating schools were concerned that they would lose their focus on learning through play and as a result would not maintain age appropriate play opportunities. The challenge was to integrate play-based leaning alongside explicit small group literacy teaching. In some cases this was achieved as the students engaged in independent learning that provided opportunities for play and used play-based approaches to teaching and learning. The PLF indicated that at the beginning of the LAPS program these play-based opportunities may include role-playing writing and reading, alphabet matching games in addition to other literacy play-based activities with more independent writing and reading tasks introduced as the students develop.
early literacy skills.

Similarly, teachers were seen to continue to work with existing pedagogies and strategies and this impacted on the implementation and timetabling of LAPS procedures. This was addressed during training sessions by asking teachers to think about the elements of literacy they were teaching outside of LAPS and reflect on ways to integrate these effectively within the LAPS procedures. This also required analysis of the procedures and how aspects such as phonics, handwriting and sight words are taught in the context of reading and writing.

**Classroom grouping and management strategies**

The LAPS program requires teachers to review assessment data to group students with like needs for focussed teaching. Discussions regarding fluid grouping and matched needs grouping were a strong focus of classroom coaching sessions. Further, to facilitate small group teaching teachers were required to design and implement independent learning tasks. This also raised concerns as a number of teachers indicated they did not have the resources to run independent activities. This resulted it the PLF and teacher participants sharing ideas and suggesting activities that might be possible, including the use of existing classroom materials, while also targeting LAPS funding for this purpose. In order to implement LAPS effectively, a set of engaging and purposeful activities that can be completed by students independent of the teacher are needed.

Other concerns regarding the emphasis on independent learning related to the impact on classroom management and students' behaviour. In order to address these challenges, it was suggested by several Education Assistants that additional support in the classroom would be useful. One method for increasing the classroom support suggested by the teachers was training and utilising parents. Teachers stated that if the parents understood the LAPS program and the teaching activities they could assist with the implementation of the program. One teacher reported that they believed that the interest to support the program from the parents was there however it was not being utilised. One Education Assistant suggested that training parents interested in the program, to assist in classrooms, would strengthen the implementation of LAPS.

**Improving practice**

A constant challenge remains to enhance classroom teaching, with a focus on shifting students to higher levels of literacy performance. Suggestions from the PFL
and teacher participants included more frequent school visits and feedback to assist teaching staff to strengthen the implementation the program. Specifically to ensure the use of concise, clear teacher language, address the essential elements of the teaching procedures and build understanding of effective class groupings, with a focus on how to group students and respond to the needs of the students within each group. Classroom coaching should also continue to provide modelling of the LAPS teaching approaches, assisting teachers to move students to independent writing and through to reading levels 3 and beyond in addition to promoting more independent literacy tasks.

4. Impact of the LAPS program on students’ learning.

An exploration was undertaken in order to establish the impact of the LAPS program on the students' early literacy learning. Pre and post-testing was conducted, with data from 118 students available for analysis. The participants’ entry and exit reading level scores, entry and exit phonological awareness scores, entry and exit Concept about Prints scores as well as their attendance data were examined.

**Average scores and effect sizes**

Mean scores at entry and exit for the three measures increased over the implementation period. Most children commenced the Pre-primary year with a reading level of 0. This increased to an average of Level 5. Similarly, increases were evident in Phonological Awareness measures, with scores increasing from an average composite score of 2 to an average of 6, and for the Concepts about Print test scores, which ranged from an average of 9 at entry to 16 at exit. The average scores are displayed below in Figure 1 and also detailed in Table 1 below.

Figure 1. Comparison of students’ entry and exit test scores for the three test measures
The levels of attainment, across the implementation period, show significant effect sizes. The eta squared effect size shows that there are large significant differences between time 1 and time 2 scores showing a profound improvement on average over time (Kotrlik & Williams, 2003). Effect sizes of .69 for reading levels, .78 for Phonological Awareness and .87 on the Concept about Print test were achieved. This shows the high impact of program on students’ literacy learning on these specific indicators. See Table 1.

<table>
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<th>Entry n = 105</th>
<th>Exit n = 105</th>
<th>Mean</th>
<th>SD</th>
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Table 1. Magnitude of the difference between entry and exit scores of the three test measures.

**Change of time in students’ performance**

Frequency distributions were used to map students’ progress further and show the range and frequency of improvement levels of achievement scores at entry and exit were examined.

Students’ reading level scores before the implementation of the program indicated that the majority of the respondents were reading at level 0 (88.9%). A smaller percentage were found to have reading levels which were equivalent to level 1 (9.17%) or level 2 (1.83%). The highest recorded reading level prior to the LAPS program was level 2.

The students’ reading abilities after the implementation of the LAPS program had increased, with a larger percentage of the students reported to be reading at level 3 (6.0%) level 4 (12.82%), level 5 (11.11%), level 6 (18.80%), level 7 (4.27%) and level 8 (7.69%). A small percentage of students were also reported to be reading at much higher levels - level 9 (4.3%), level 10 (1.7%), level 11 % (0%), level 12 (1.7%), level 13 (1.7%), level 14 (0.9 %), level 15 (0.9%), level 16% (0%), level 17 (0.9%). Despite these improvements, there were students who were recorded to still be reading at level 0 (11.11%), level 1 (10.26%) and level 2 (5.98%) post the LAPS program. However, the number of students reading at these levels had dropped since the pre-testing. Figure 2 below illustrates the students' reading levels and the gains made as
a percentage of the total cohort across text levels.

Figure 2. Entry and exit reading levels, in percentage
* Over level 8 = 19.8%

In addition to the exploration into the students’ reading level, test measures were used to compare the students’ pre and post levels of phonological awareness. The phonological awareness test score is derived from a composite of test items drawing across a range of assessment tools used by participating schools, including items from the Fountas and Pinnell Phonological Awareness Assessment (2007) and the PLD Pre-Literacy Screen (Rigg, 2009). With reference to a range of items (see Appendix 1) students’ scored 0 or 1, with a maximum score of 8 for the areas of Phonological Awareness listed below.

1. Word Segmentation
2. Syllable Segmentation
3. Rhyme Identification
4. Initial Sound Identification
5. Final Sound Identification
6. CVC Blending
7. CVC Segmentation
8. Initial Sound Deletion

Before the implementation of the program, testing indicated that the 66.97% of the respondents had scores of either 0 (29.36%), 1 (27.52%) or 2 (10.09%). The
The highest phonological awareness score recorded prior to the LAPS program was a score of 8 (.92%). The students’ phonological awareness abilities increased over the implementation period with 83.75% of the student cohort obtaining scores of 4 or above, 4 (11.11%), 5 (15.38%), 6 (11.11%), 7 (17.09%) and 8 (29.06%). Notwithstanding, there was a small proportion of the sample reported to have exit scores of 0 (.85%), 1 (7.69%), 2 (2.56%) and 3 (5.13%). Figure 3 presents a graphical representation of the students’ phonological awareness scores pre and post the implementation of the LAPS program as a percentage of the total cohort.

![Figure 3. Entry and exit phonological awareness test scores, in percentage.](image)

Pre and post Concepts about Print scores recorded for the student cohort indicated a range of scores at entry. The frequency distribution shows students had Concepts about Print scores ranging from 0 to 17 out of a total of 24. Students’ scored 0 (0.9%) 1 (4.59%), 2 (4.6%), 3 (6.42%), 4 (5.50%), 5 (4.59%) and 6 (5.50%). Others had scores of 7 (9.17%), 8 (6.4), 9 (6.4%), 10 (4.6%), 11 (15.60%), 12 (6.42%) and 13 (8.26%), 14 (6.4%), 15 (2.8%), 16 (0.9%) and 17 (0.9%) at entry. Evidently there was diversity in the students’ print concepts scores prior to the implementation of the LAPS program.

The students’ Concepts about Print scores after the implementation of the LAPS program had increased considerably with more students reported to have Concept about Print scores of 15 (12.1%), 16 (10.3%), 17 (11.2%), 18 (4.3%), 19 (14.7%), 20 (9.5%), 21 (4.3%) and 22 (1.7%). A small percentage of the students demonstrated
lower scores however the lowest score recorded for this measure post the implementation of the LAPS program was 6. Figure 4 below displays students’ phonological awareness scores pre and post the implementation of the LAPS program in percentage terms.

Figure 4. Entry and exit Concept about Print test scores, in percentage

**Correlation and regression analysis**

An investigation into the impact of the LAPS program on the students’ reading levels, phonological awareness and early concepts of print knowledge was undertaken through a correlation and regression analysis (Coakes & Ong, 2011). These forms of statistical analysis were chosen to explore the impact of the LAPS program and to provide an understanding of the relationships between the measures.

The correlation table (see Table 2) shows the associations between students’ entry and exit scores. Generally the trend is that entry scores predict exit scores, hence those that commence with higher scores continue to achieve well. More specifically an exploration into the associations between the variables also found that the students’ exit reading level score demonstrated a statistically significant association with both their exit phonological awareness score ($r = .63, p < .001$) and their exit Concepts about Print score ($r = .78, p < .001$). This indicates that the three aspects measured each contribute to the attainment levels achieved, and are optimally facilitating of students’ literacy learning.

[Note: $r$ = the strength of the relationship with a possible range of -1 to +1; $p$ is the probability of obtaining a result, (e.g. if $p = .05$ it has 20% chance of being an error or 1 chance in 5 of being and error.]
A regression analysis was competed to establish which factors might predict exit reading level. The best predictor of exit reading level was exit Concepts about Print. Following this was entry Concepts about Print and followed by exit phonological awareness. Entry phonological awareness and entry reading level were not significant contributors to exit reading level. Teaching to improve students' understandings of print concepts, and to a lesser degree phonological awareness, contributed to a large degree in the improvement in reading levels.
Table 2. Inter-correlations for entry and exit reading levels, phonological awareness, concept of print scores and attendance

<table>
<thead>
<tr>
<th></th>
<th>Entry Reading Level</th>
<th>Exit Reading Level</th>
<th>Entry Phonological Awareness (PhA)</th>
<th>Exit Phonological Awareness (PhA)</th>
<th>Entry Concept about Print</th>
<th>Exit Concept about Print</th>
<th>Attendance</th>
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<tr>
<td>Entry Reading Level</td>
<td>1.00</td>
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<tr>
<td>Exit Reading Level</td>
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<td>1.00</td>
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<td>Entry PhA</td>
<td>.52**</td>
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<td>.71**</td>
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<td>Attendance</td>
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<td>.28**</td>
<td>.25**</td>
<td>.35**</td>
<td>.31**</td>
<td>.45**</td>
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Note.  
** p < .001; * p < .05

Entry Reading Level = Entry reading level score; Exit Reading Level = Exit reading level score; Entry Phonological Awareness = Entry phonological awareness score; Exit Phonological Awareness = Exit phonological awareness score; Entry Concept Print = Entry Concepts About Print score; Exit Concept Print = Exit Concepts About Print score; Attendance = School attendance score.
5. Findings and recommendations

The design of professional learning program for teachers

The LAPS professional learning program was specifically designed to introduce a range of teaching approaches to teachers with the aim of strengthening students' literacy skills. The professional learning program consisted of off-site learning, on-site learning sessions alongside regular coaching and modelling in the classroom. A summary of the key strengths of the LAPS professional learning program for teachers follows.

- The professional learning program was well structured and engaging.
- The content of the professional learning sessions was useful and relevant, specific to teaching in the Kimberley, with a strong focus on students' literacy development.
- The coaching approach that included modeling and teaching support in classrooms alongside frequent opportunities for collaboration between staff and the PLF was considered responsive to teacher feedback and effective in meeting the needs of the teaching teams.
- The PLF created a supportive and informative learning environment for the participants.
- The planning sessions were reported to be valuable for maintaining communication between staff, monitoring students' development and reviewing individual learning goals.
- The professional learning program provided teachers with a range of useful resources.
- The emphasis on students' individual needs and goal setting was perceived as valuable.

A review of data collected and analysed indicated that principals and teachers held very positive views of the professional learning program. However, there were several recommendations made regarding possible improvements to LAPS professional development program, particular to program content. These recommendations include the following.

- Participants to be provided with details of the philosophy/pedagogy underpinning the LAPS program.
- An emphasis on how the LAPS program relates to the Australian Curriculum.
- An increased emphasis on areas such as timetabling and classroom management, further exploration the teaching approaches, specifically Guided Reading, with larger group sizes and for students at higher reading levels, also a greater focus on Reading
To Students and the shifts to independence in writing.

- Further, attention to be paid to approaches to engage students who as a result of circumstances have very limited reading and writing experiences as a basis for learning, including an increased focus on oral language.
- Further opportunities for teachers to share issues, resources and reflect on practice. With an increased amount of time allocated to planning during the professional learning program.
- Incorporating observation of students’ progress and monitoring of records every five weeks to guide teaching practice, focus the school visits, and inform professional learning programs.

The effectiveness of the professional development program on classroom practices

The LAPS professional learning program was designed to impact classroom practices. Several strengths of the professional learning program regarding its impact on classroom are detailed below.

- There was an increase in the professional knowledge and skill base of teachers and they became equipped to implement a range of classroom strategies. Further, teachers’ level of confidence was reported to have increased which impacted positively on strengthened classroom and practices.
- Data collection processes and the regular monitoring of students’ learning enabled teachers to ascertain students’ individual needs, set appropriate literacy learning goals and monitor progress. The data collection procedures enabled teachers to make informed decisions regarding the implementation of the LAPS teaching approaches.
- Students were observed to be making progress in literacy learning, for example, with their letter formation, transferring sight word knowledge and working more independently.
- Students were observed to be more engaged in literacy learning.

Building on these positive outcomes several recommendations were highlighted to improve the LAPS program.

- While there were several advantages reported as associated with the data collection procedures there were aspects of this that were perceived by the participating teachers to be time consuming and challenging. As a result, school based solutions proposed to ease the difficulties surrounding the data collection procedure were implemented. The balance between data collection, analysis and teaching needs to
be considered alongside procedures which allow for the process to be appropriately managed.

- Complementary to this, the suggestion that teachers engage in the regular review of students’ data, as this was considered more beneficial and less time consuming than regular assessment and testing.

- Utilising additional staff and support such as Education Assistants and parents who have been trained in the LAPS program to assist in the implementation of the program.

- Development of a set of classroom activities for independent student use, including play-based tasks that can be used to consolidate the early literacy concepts, for example, alphabet matching games, role-playing writing and reading in addition to other literacy play-based activities.

**The impact of the program of students’ literacy learning**

The data collected provide clear evidence of the positive impact of the program on students’ literacy learning outcomes.

- An exploration into the sample of 118 students found increases in the reading levels, phonological awareness scores and Concepts about Print knowledge scores across the duration of the LAPS program. Reading level scores pre LAPS were predominantly at level 0 (88.9%) with the highest recorded reading level being level 2. Post LAPS, many students were reading at or above level 6 (42.9%) with 17 being the highest recorded reading level. The composite Phonological Awareness entry scores were predominately 0 (29.36%) or 1 (27.52%). Post LAPS, the majority of students had a phonological awareness composite score of 7 or 8, demonstrating high levels of mastery over the items assessed. Concepts about Print test scores pre LAPS were predominantly below 10. Post LAPS, the majority of students had Concepts about Print scores of 15 and above.

The large effect sizes of the program - .69 for reading levels, .78 for Phonological Awareness and .87 on the Concept about Print - are evidence of the high impact of the program on students’ learning. Hattie (2009) claims ‘effect sizes’ are the best way of answering the questions of influence on student learning and states an effect size of 0.2 may be judged to have a small effect, 0.4 a medium effect and 0.6 a large effect on outcomes. According to Hattie, achievement gains greater than 0.4 are considered above average for education research.
Analysis of the student data also identified areas for consideration, as noted below.

- The association between entry and exit scores has implications for preschool programs and teaching priorities, particularly around book experiences that develop early print concepts and familiarly with the sounds and patterns of language.
- The relationship between Concept about Print test scores and text reading levels need to be examined further with possible implications for the emphasis of pre-school teaching programs, and the role of the ‘Reading To’ procedure within the LAPS program.
- As many students were reading above level 5 at the end of the year, teacher concerns about Guided Reading at higher levels needs to be addressed, and expectations raised regarding expected achievement levels. This will also impact on Year One teaching programs and teacher preparedness for students’ higher reading levels.
- Future research might also take into consideration of students’ entry and exit writing levels, the relationship between phonics and writing and explore the reciprocity between early reading and early writing acquisition processes.

6. Conclusion

The results presented show the very positive outcomes of the implementation of the LAPS program in 2015. Teachers’ report of the impact of the program on their professional learning, classroom teaching programs and the literacy learning gains achieved by the student cohort. Principals also commented favourably on the effectiveness of the program in raising standards and contributing to shared understandings and collaborative approaches to practice. Students’ learning gains provide further compelling evidence of the success of the program. Combined the findings indicate that the LAPS program can be viewed as a model of systematic, high quality professional learning, contributing to the development of students’ early literacy skills. That said, continuing reform efforts and targeted research to refine teaching practice, is necessary to effectively address the very specific needs faced by our young Indigenous learners and to further their enhance literacy outcomes.
7. References


8. Appendix 1
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Literacy Acquisition for Pre-primary Students, 2015
**Assessment Collation Guide:** The table below outlines how to collate the information from your school’s PA assessment tool onto the LAPS PA Class Data Sheet.

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<th>Schools</th>
<th>School One</th>
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<th>School Three</th>
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<td>Fountas &amp; Pinnell PAA</td>
<td>PLD Pre-Literacy Screen</td>
<td>School’s own assessment, adapted from Swan Speech &amp; Language PAST (WA Ed. Dept.)</td>
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<td><strong>LAPS PA Data Items:</strong></td>
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<td><strong>1. Word Segmentation</strong></td>
<td>1: Identifying words in sentences. Maximum score of 3 = 1.</td>
<td>Identifying Word Boundaries Yes = 1.</td>
<td>* See Supplementary Test 1 (individual) or Supplementary Task 1 (small group)</td>
<td>1.3 Counting words in sentences (segmenting) Maximum score of 5 = 1.</td>
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<td><strong>2. Syllable Segmentation</strong></td>
<td>2: Identifying syllables in words. Maximum score of 4 = 1</td>
<td>Hearing Syllables Maximum score of 12 = 1.</td>
<td>Exercise 1: Syllable Segmentation Maximum score of 5 = 1.</td>
<td>2.2 Segmenting Syllables Maximum score of 5 = 1.</td>
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<td><strong>4. Initial Sound Identification</strong></td>
<td>5: Identifying initial sounds. Maximum score of 3 = 1.</td>
<td>Identifying Beginning Consonant Sounds Maximum score of 5 = 1.</td>
<td>Exercise 3.2: Vocalisation of Initial Phoneme Maximum score of 5 = 1.</td>
<td>4.1 Initial Sounds Maximum score of 5 = 1.</td>
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<td><strong>5. Final Sound Identification</strong></td>
<td>6: Identifying final sounds. Maximum score of 3 = 1.</td>
<td>Identifying Ending Consonant Sounds Maximum score of 5 = 1.</td>
<td>* See Supplementary Test 2 (individual) or Supplementary Task 2 (small group)</td>
<td>* See Supplementary Test 2 (individual) or Supplementary Task 2 (small group)</td>
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<td><strong>6. CVC Blending</strong></td>
<td>11: Blending sounds. (a &amp; b only) Score of 2 (a &amp; b) = 1.</td>
<td>Blending Sounds Maximum score of 5 = 1.</td>
<td>Exercise 4.2: CVC Phonemic Level Blending Maximum score of 5 = 1.</td>
<td>4.2 Blending sounds Maximum score of 5 = 1.</td>
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<tr>
<td><strong>7. CVC Segmentation</strong></td>
<td>9: Segmenting words into sounds. (a &amp; b only) Score of 2 (a &amp; b) = 1.</td>
<td>Segmenting Sounds Maximum score of 5 = 1.</td>
<td>Exercise 5: Segmentation Maximum score of 5 = 1.</td>
<td>4.3 Segmenting Sounds Maximum score of 5 = 1.</td>
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<tr>
<td><strong>8. Initial Sound deletion</strong></td>
<td>12: Deleting initial sounds. Maximum score of 4 = 1.</td>
<td>Deleting Sounds Maximum score of 5 = 1.</td>
<td>* See Supplementary Test 3 (individual) for students who pass the above test items.</td>
<td>4.4 Deleting 1st Sound Maximum score of 5 = 1.</td>
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<td>LAPS Data Item</td>
<td>Supplementary Test (To be completed individually)</td>
<td>Supplementary Task (For completion in a small group)</td>
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<tr>
<td>1. Word Segmentation</td>
<td><strong>Supplementary Test 1 (From Midwest PAST)</strong>&lt;br&gt;Materials: 6 blocks/ counters.&lt;br&gt;Instructions: “We’re going to count words in sentences. I’ll do the first one for you.” Spread counters out in front of the child. Select one counter and place as you say each word. E.g. “Your (put 1 counter down) name (another counter) is (counter) John (counter)”.&lt;br&gt;Demo: “Your name is ___________ (child’s name)”&lt;br&gt;Trial: “Let’s do this one together: I like chocolate.”&lt;br&gt;“You do these ones.” Say the sentence. Encourage child to use the counters.&lt;br&gt;a) We are sitting.&lt;br&gt;b) I went for a swim.&lt;br&gt;c) I saw the elephant.</td>
<td><strong>Supplementary Task 1</strong>&lt;br&gt;See materials and instructions from <em>Supplementary Test 1</em>. Working with a small group, get children to take turns at placing/ moving counters for each word in the sentence. Use the sentences below.&lt;br&gt;Your name is ___.&lt;br&gt;I like puppies.&lt;br&gt;We are talking.&lt;br&gt;Stop running.&lt;br&gt;I saw the kangaroo.&lt;br&gt;I ate a mango.&lt;br&gt;I have two sisters.&lt;br&gt;Today is ___.</td>
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<td>5. Final Sound Identification</td>
<td><strong>Supplementary Test 2 (From Midwest PAST)</strong>&lt;br&gt;Instructions: “We’re going to listen to sounds at the end of words now. What’s the last sound you can hear?”&lt;br&gt;Make sure you use the sound and not the letter name, e.g., “ffff” not “ef.” If the child tells you the letter name, say “that is the letter name, what sound does that make?” If they cannot name the sound then it is not marked as correct.&lt;br&gt;Demo: gum - “This one ends with mm”&lt;br&gt;Trial: crash - “What does that end with?” (sh)&lt;br&gt;a) bus (s)&lt;br&gt;b) meat (t)&lt;br&gt;c) frog (g)</td>
<td><strong>Supplementary Task 2</strong>&lt;br&gt;Materials: 16 final sound cards (supplied in this pack): ball (l), bus (s), frog (g), dog (g), cat (t), duck (k), leaf (f), sun (n), fish (sh), top (p), bed (d), tap (p), meat (t), bin (n), shell (l), sock (k) (print and laminate).&lt;br&gt;See instructions from <em>Supplementary Test 2 (From Midwest PAST)</em>.&lt;br&gt;Working with a small group (4 children), each child picks a card. Say the word and ask the child what sound it ends with.</td>
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<tr>
<td>8. Initial Sound Deletion</td>
<td><strong>Supplementary Test 3 (From Midwest PAST)</strong>&lt;br&gt;Instructions: “We’re going to say a word, then we’re going to say it again without the first sound. I’ll do the first one.”&lt;br&gt;Demo: “hit, I can say it without the h- it”&lt;br&gt;Trial: “say beach. Now say it without the b.”&lt;br&gt;“You do these ones.”&lt;br&gt;a) Say cat. Now say it without the k.&lt;br&gt;b) Say seat. Now say it without the s&lt;br&gt;c) Say dear. Now say it without the d.&lt;br&gt;d) Say chair. Now say it without the ch.</td>
<td>Not applicable. (Only test the children who pass the previous test items, especially items 4-7).</td>
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<td>Supplementary Test 3: Initial Sound Deletion</td>
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| Supplementary Test (individual) | a) We are sitting
b) I went for a swim.
c) I saw the elephant | total score /3 | a) bus (s)
b) meat (t)
c) frog (g) | total score /3 |
| Supplementary Task (small group) | 3 words
5 words
4 words | word 1
word 2
word 3 | n/a
n/a
n/a | n/a | n/a | n/a | n/a | total score /4 |

Literacy Acquisition for Pre-primary Students, 2015