*Explicitly teaching segmenting and blending to at risk Year One students improves word reading accuracy in prose.*

## Abstract

This study examines the benefit of explicit instruction for at risk year one readers and their ability to blend and segment. The study used onset and rime within prose to teach this skill. The study drew on 'at risk' students as classified by the schools reading benchmark.

It is a naturalistic study carried out within a year one classroom. Five students were selected to participate in the study after being identified as 'at risk' readers. Pre and post-testing was conducted in a quiet room whilst intervention sessions ran for approximately twenty-five minutes within the reading session of the Literacy block over ten consecutive mornings.

The results of this study support the hypothesis that *explicitly teaching segmenting and blending to at risk Year One students' improves word reading accuracy in prose.* Although all participants did make sizeable gains through the study an extended period of time would have been more beneficial for students as their post-testing results show they are still not at an appropriate reading level for their respective ages.

The results do imply that teachers who find themselves with a student deemed at risk should seek further clarification of what a student is lacking and through targeted assessments modify the instructions given to assist the student in their particular area of need.

## Introduction

Skilled readers can read texts confidently with accuracy and fluency. Once a student is aware of individual letter links in a reliable and automatic way they can draw on this knowledge to recognise combinations of letters and word families. Students need to learn about letter clusters such as those in onsets and rimes (Love & Reilly 2004).

It has been stated that fluent readers retrieve pronunciation and meaning when reading words by using the grapheme/phoneme connections they have stored (Ehri as cited Cummings, Dewey, Latimer and Good 2011). Students with reading difficulties may not have all of these grapheme/phoneme connections stored therefore impacting on their ability to retrieve as they decode.

Students who have been characterised as being 'at risk' readers can have problems in manipulating the identified sounds of letters when reading. They often process at a single letter level and have not learnt many letter clusters. Whilst they could have learnt about letters and their correlating sounds, they are unable consistently use these to segment the sounds of a word and then blend them into a word accurately (Munro, J. 2011).

> Ehri (2002) theorized that students learn to become fluent readers by forming connections between letters in the spellings of words and sounds in the pronunciation of words (as cited in Cummings, K. D.; Dewey, E. N; Latimer, R. J.; Good, R. H., 2011).

(Goswami and Mead, 1992) investigated that students performances in phonological tasks based on onset – rime division should be related to their ability to make analogies between spelling patterns in words (beak, peak). They believed that if phonological skills were related to analogising it may relate to students' performance on phonological tasks. If a students was better able to make an inference of how a word was pronounced if they saw 'peak' and were aware of the rime present 'eak' they would be able to relate it to beak in comparison to a student who did not have this understanding (Goswami and Mead 1992). Their study exposed students to two types of sessions in differing orders a. analogy and then phonological sessions; b. phonological and then analogy sessions. They used the Schonell single word reading test and Neale prose reading test for pre and post- testing. The analogy sessions reviewed end and beginning analogies. The phonological sessions used the *Rhyme and alliteration: The oddity test*; which entails students needing to select the odd word out. They also had to attempt segmentation tasks that focused on the initial and final constants.

> Goswami and Bryant (1992) suggested that the linguistic units, onset and rime, may be crucial in explaining this robust link between rhyming and reading. Specifically a child's ability to categorise words by onset and rime units (the onset of the beak corresponds with the initial consonant b: the rime corresponds with the vowels and final consonant –eak) may be related to the child's awareness of spelling sequences in words and this may facilitate the development of reading (Goswami and Bryant, as cited in Goswami and Mead 1992).

The study concluded that students' awareness of onset-rime units is connected to their ability to make the connections between the sequence of letters that reflect rimes.

Christo and Davies (2008) investigated the relationship between rapid naming and phonological processing for single word reading, comprehension and spelling for students who had been referred for reading difficulties across grades two to five. Their tests supported the proposal that Digital Naming Speeds and Auditory Analysis Skills measured independent cognitive processes but that they are both important in the development of decoding skills. This study aims to measure students Rapid Naming Ability.

> Rapid naming appears to be a marker for a cognitive process for which a threshold level of proficiency is critical to becoming a successful reader… Students who are strong in rapid naming may be able to compensate for poor phonological processing skills (Christo and Davies 2008).

Christo and Davies (2008) suggest that the results of their study lend themselves to supporting studies that have investigated the role RAN plays in development of reading for students with reading difficulties. Their results also suggested that if students are able to manipulate sounds internally it assists in gaining more proficient decoding skills.

Cummings, et al., (2011) investigated the effect of Nonsense Word Fluency (NWF) and Oral Reading Fluency (ORF) had as future predictors of reading. Their study was measured against Ehri's alphabetical principal through the development of four distinct phases. The phases are; pre-alphabetic, partial alphabetic, full alphabetic and consolidated alphabetic. They support Ehri's research suggesting each phase has a direct link to implications for instruction (Cummings, et al., 2011). Their study selected participants from the first grade across a range of schools in a particular district, the data was collected over a year and students were assessed three times within this year. The schools with the study were aware of the data collected each time and may have altered instruction accordingly. There results supported the use of assessment in predicting students reading ability.

From this study Cummings et al. (2011) outlining the alphabetic principal and the four distinct phrases; this current study can categorise the sample students in this current study as at the partial alphabetic stage. This can be defined as having limited phonemic awareness and who partially decode words with limited blending capabilities.

This study aims to use quality instruction as 'High quality reading instruction is a manipulable that exerts a direct effect on student learning'(Kame'enui et al., 2002; Moats, 2000 cited in Cummings, et al., 2011).

This study aims to explicitly teach segmenting and blending using a selection of the thirty-seven dependable rime units. Through this explicit instruction it is hoped student's word reading and accuracy will improve. This case study aims to extend earlier research by using pre-testing data to determine how segmenting and blending will be taught through the use of onset/ rime units and prose.

**Prediction**

*Explicitly teaching segmenting and blending to at risk Year One students improves word reading accuracy in prose.*

## Method

**Design:**

This study uses a naturalistic design in the context of a 'real' classroom. This Action Research uses a case study OXO (observe/teach/observe) design in which the gain in word reading accuracy following the explicit teaching of segmenting and blending using dependable rime units is monitored for at risk Year One students. The participants were assessed prior to their inclusion in the study, as there was no comparable group across the Year One level; there was no control group.

**Participants:**

*Table 1*

| Name | Control = 0 Teaching=1 | Age in MONTHS | Gender 0=Male 1= Female | Years of Schooling | ESL No=0 Yes=1 | LNSLN funding 0= N/A 1=SLD 2=ID 3=Asp | Earlier Intervention No=0 RR=1 Bridges=2 ERIK=3 | Current mid- year Text Level prior to intervention | Ob Survey / Letter ID |
|---|---|---|---|---|---|---|---|---|---|
| **A** | 1 | 91 | **1** | 2 | 0 | 0 | 0 | 10 | 54 |
| **B** | 1 | 81 | **0** | 2 | 0 | 0 | 0 | 10 | 52 |
| **C** | 1 | 87 | **0** | 2 | 0 | 0 | 0 | 9 | 52 |
| **D** | 1 | 90 | **0** | 3 | 0 | 0 | 0 | 9 | 54 |
| **E** | 1 | 82 | **1** | 2 | 0 | 0 | 0 | 13 | 54 |

The participants in this study were selected due to their history with reading difficulties, along with evidence taken from classroom literacy testing. The participants all attend a Catholic school in regional Victoria. The school aims for Year One students to have a text level of twenty prior to moving to Year Two therefore participants is this study are categorised as at risk.

All participants in the study were selected from the same Year One classroom. Their ages range between 6 years and 10 months to7 years and 7 months. It is the second year of schooling for four of the participants and

the third year of schooling for one of the participants in this study. Two participants in the study are unable to identify two sounds of the fifty-four alphabet names and sounds. Participants in this study have not had any previous intervention with the Reading Recovery program, Bridges or ERIK.
Student D and E were involved in a trial of the PERI program and were assessed using the SPAT test during their Prep year.

As shown in Table 1; **Student A: 91 months, female**. Student A entered Prep with limited letter ID and phoneme awareness, she entered Year One on a reading level of six. Since then she has reached a text level of ten. She had access to speech pathology through her Kindergarten year, this ceased in Prep. This is her second year of schooling.
**Student B: 81 months, male**. Student B entered Prep with limited letter ID and phoneme awareness. He entered Year One on a reading level of four. Since then he has reached a text level of ten. He had speech pathology through Kindergarten for the sound 'ch' 't' 'th'. This ceased during Prep. This is his second year of schooling.
**Student C: 87 months, male**. Student C entered Prep with no letter ID or phoneme awareness. He entered Year One on a reading level of four. Since then he has reached a text level of nine. This is his second year of schooling.
**Student D: 90months, male**. Student D repeated his prep year due to concerns about his reading difficulties, he is now within his third year of schooling. He entered Year One with a reading level of seven. Since then he has reached a text level of ten.
**Student E: 82 months.** Student E is in her second year of schooling and entered Year One with a reading level of eight. Since then she has reached a text level of thirteen.

**Materials**

Pre and Post Assessments
- Rapid Naming Ability – Letters and Numbers test (RAN test) was administered to assess students naming speeds.
- Dalheim (2004) Rime Unit Test was administered to assess students' ability to read three, four and five letter rime units.
- Sutherland Phonological Awareness Test – Revised (SPAT-R) was administered to assess students' phonological awareness of phonemes, syllables, onsets and rimes.
- Neale Analysis was administered to assess students' word accuracy, comprehension and their rate of reading. Students' read aloud and are timed during this test.

The following tests were administered as Pre Assessments but due to the similar data they provided, only the above four test were used again in post testing. The data provided by the Neale Analysis was ample not to use the Reading Progress Test and the Rime Unit Test presented suitable information in regard to onset and rime knowledge so the Orthographic test was not used.
- *Reading Progress Test (RPT) – results from pre testing data showed comprehension but as the prediction for this study wants to measure accuracy within prose the Neale Analysis was selected for post testing.*
- *Orthographic Test – the Year One students selected for this study were unable to read the majority of words listed for post testing the Rime Unit Test.*

Teaching Sessions
- 37 dependable rimes list (Blue Print for Literacy Success)
- Magnetic letters and magnetic boards
- Computer websites
- Segmenting grid adapted from SPAT- R Assessment
- Reading texts : a selection of PM Readers

- Counters
- Coloured pencils

Teacher generated;

- Short prose using rime units adapted from PM Readers
- Plate match game – paper plates with onset and rime
- Rime unit Black Line Master
- Word slide from the 200 most commonly used words

**Procedure**

Pre and Post testing occurred over two days, Pre testing occurred two days before the first session and Post testing occurred the day after the tenth session. The intervention was delivered to the participants in the classroom as part literacy block each day for ten consecutive sessions that spanned a three period. Each session ran for twenty five minutes, the group worked together on a large table and at times were interrupted by classroom events and needs.

The sessions were based on the ERIK program. The participants worked in order on the following;

- Reading of prose from previous session with discussion about what had been learnt
- Blending
- Segmenting
- Reading prose
- Independent blending
- Review rime (discussion)

*see Appendices for explicit session outlines for session 2, 4, 6 and 8.

*Session 1*

Participants were introduced to how the sessions would run. Students work with one dependable rime unit as they were directed through each of the explicit teaching points.

*Session 2-7*

Participants following the same structure as listed above review two rime units during each session. Students were asked to identify rime units and different onsets. Using magnetic letters they blended words. Using an adapted segmenting template similar to the SPAT-R template, students segmented a range of words containing particular rime units. Students then read prose silently and were asked to identify rime units with the text. Students then read prose aloud with discussion about unknown vocabulary if required. Questions were posed to students to encourage a self-script. Students then worked individually on blending using a range of word slides, flash cards, matching cards and computer software. Students then return to the group to review the rime units covered in session and all sessions prior, to assist students in building a word bank.

*Session 8-10*

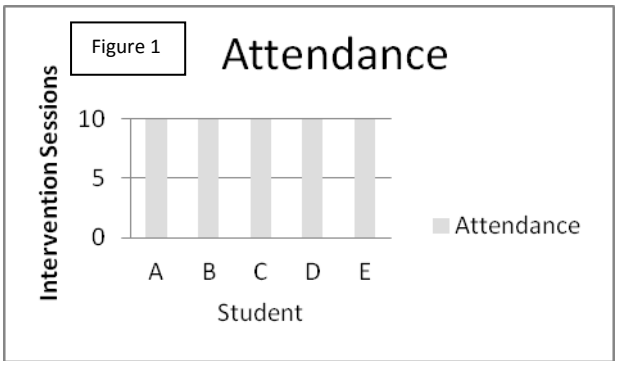
It was intended that students would direct their learning independent of the teacher following the structure they had used over a number of sessions. During session seven; students had been given tasks to follow without teacher assistance in preparation for session eight students however were not able to manage their learning. Students for session nine and ten were teacher lead following the structure that had been used for sessions two through to six.

Anecdotal notes were taken during and at the conclusion of each session. These notes included observations of students' word accuracy, ability to blend, segment and work independently. They also recorded which students had retained previous learnt rimes and whether students had been engaged in tasks. After the

completion of the tenth session a day was taken to Post-test all participants using the four tests identified under the sub heading of ‘Materials’ in this report.

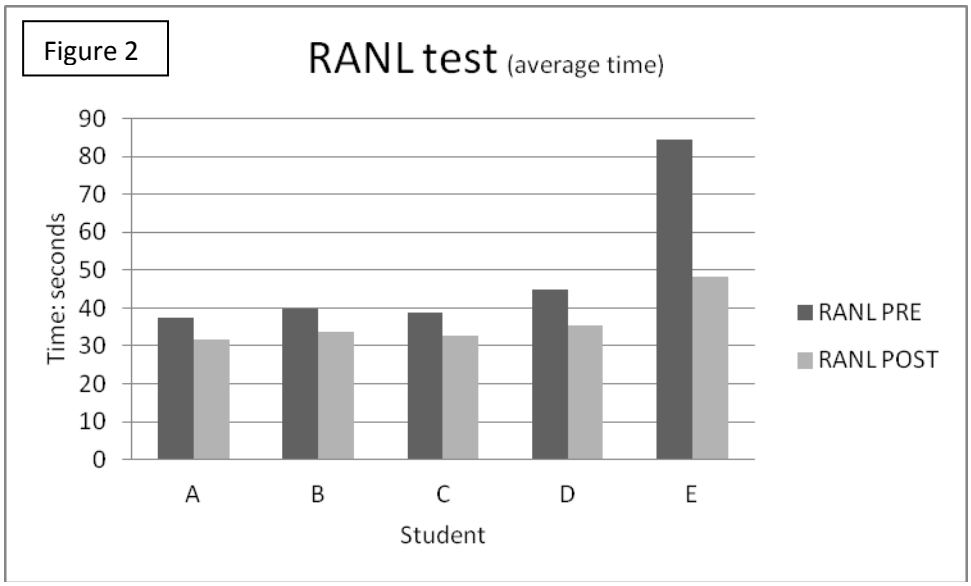
## Results

Figure 1; there were five participants in this case study, each attended all ten twenty-five minute sessions. Participants’ enthusiasm varied throughout the sessions.




Rapid Naming Ability test

The test was administered to students as the first pre and post assessment. Students were required to have a go at the practice items before beginning the assessment. Test requires students to read two sets of letters and two sets of numbers; each is timed and then an average is taken from both.



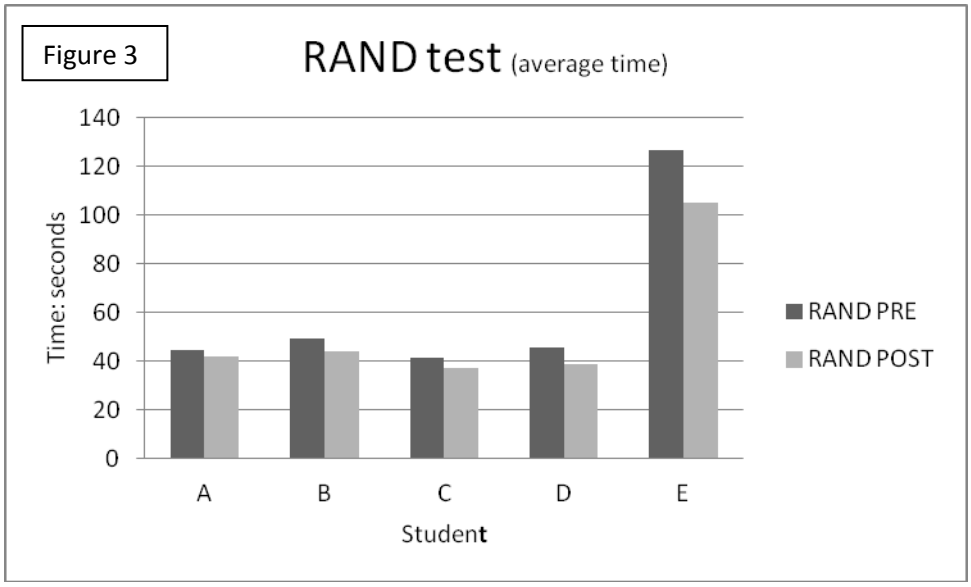
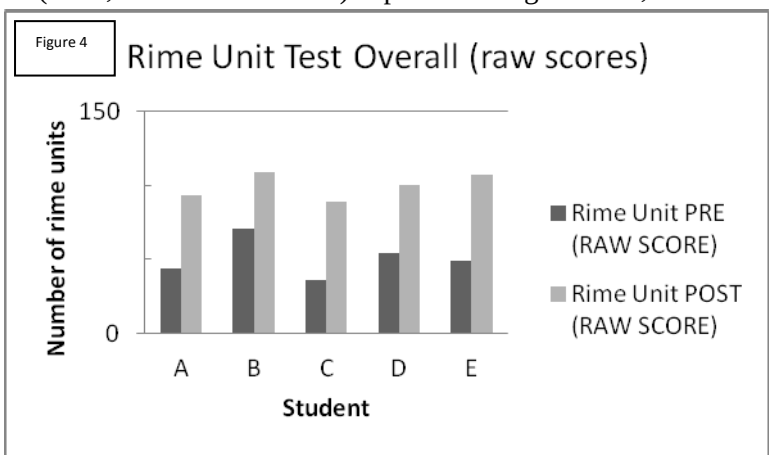


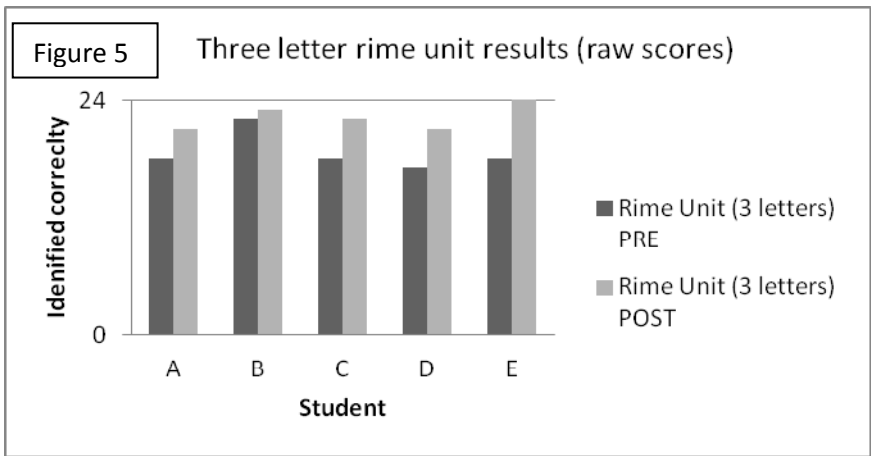

Figure two and three show the Rapid Automised Naming of Letters (RANL) and Numbers (RAND) results from pre and post assessments. Trends for the group show that four of the five students in pretesting for both figure two and three scored below fifty seconds, student E being the only exception with both the RANL and RAND test being quite slower. From post testing results trends for the group indicated students times increased in speed from the intervention. All students made gains in reducing their RAN times recorded, the biggest of which was made by Student E who lowered her RANL time by 36.1 seconds and her RAND speed by 21.4 seconds. She also took longer to when reading the RAND sets in comparison to her reading of the RANL sets.
The trend for all five students indicates improvements in their RAN ability.

Rime Unit Test
The test was administered to students as the second pre and post assessment. Students were required to read each line from top to bottom not from left to right. The test requires students to read a range of three, four and five letter words that contain a particular rime unit. An overall raw score is illustrated in figure four; a further analysis of each word set (three, four and five letter) is present in figures five, six and seven.




Tends for the group shown improvement as all students made gains in their ability to read words presented, these results support the prediction through the explicit teaching of segmenting and blending students in this study were able to apply their knowledge to read these rime unit words in isolation.

Individual trends show improvement for all students. Student E read 38.9% more words on her post-test in comparison to her pre-test. Student B made the smallest gain of 25.5% but had the highest pre-test result of 71 correct words raising his score to 109 in the post testing. This student was able to identify that the words were made up of onset and rime; he was the only participant in post testing that made the connection that the words were running from right to left using the rime units. Student C improved by 35.5% he took longer than the other four participants to complete the test due to his increased knowledge as he spent more time breaking up words rather than using distinguish visual features (DVF) which he used heavily in his pre-testing. Students A and D also relied heavily on DVF during pre-testing. Student A improved by 32.8% and Student D improved by 30.8%.




The group overall showed higher knowledge of three letter words in comparison to their pre testing results for four and five letter rime unit words. This resulted in smaller gains being made by the students. All participants were able to improve, the greatest gain being achieved by Student E with an improvement of 25% more words. Student B scored the highest for knowledge of three letter rime units and was only able to improve by 4.1%. Student C and D were able to improve by 16.6 %.
Student A improved her knowledge by 12.5 %.

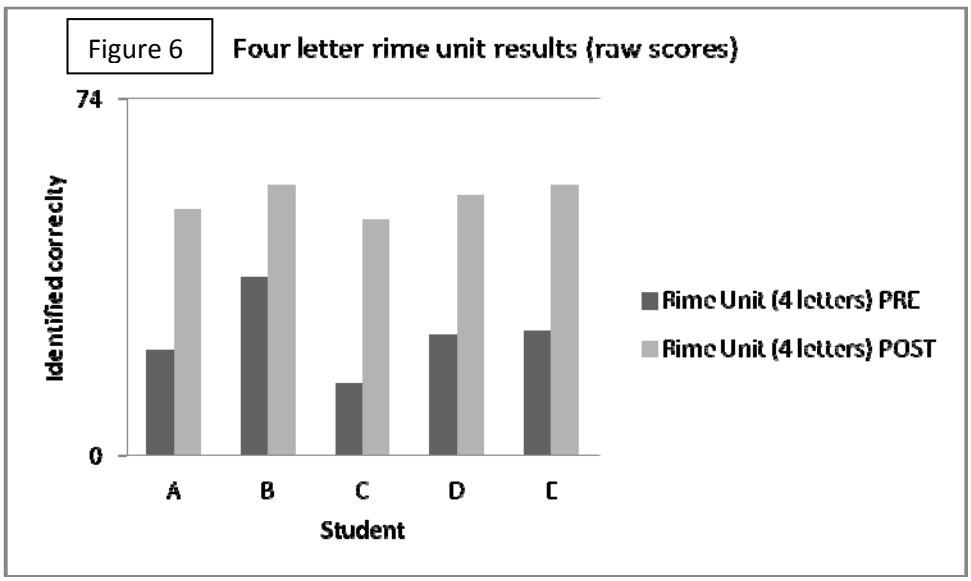
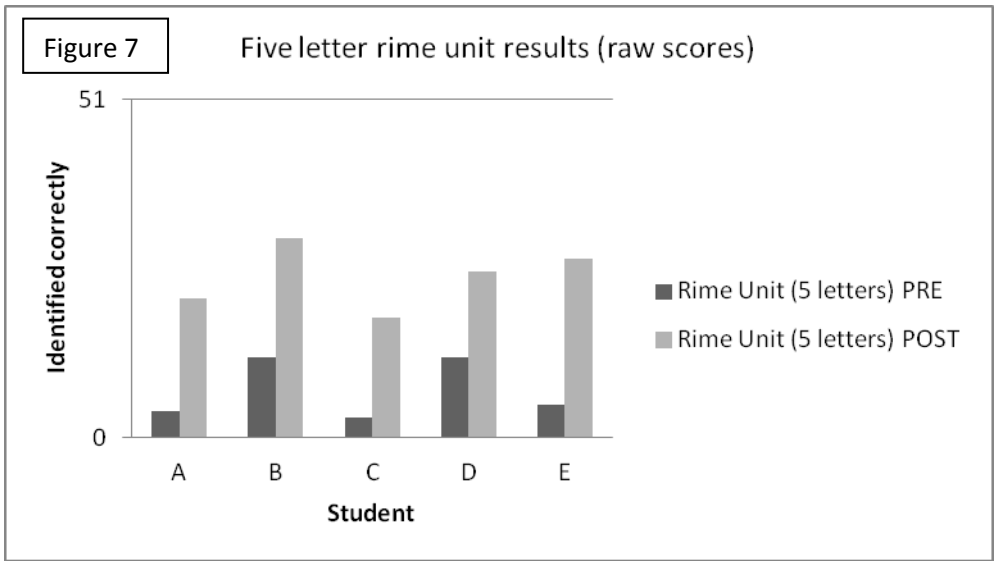



Figure six shows that in pre-testing; Student B had the highest pre-test for knowledge and in turn had the smallest gain in comparison with his peers, he improved by 25.6%. Student C had the recorded the largest gain of 45.9 %, but he had the lowest pre-test score of just fifteen words out of a possible 74.

Student A and D improved by 39.1 %. Student E improved by 40.5%.

Figure 7



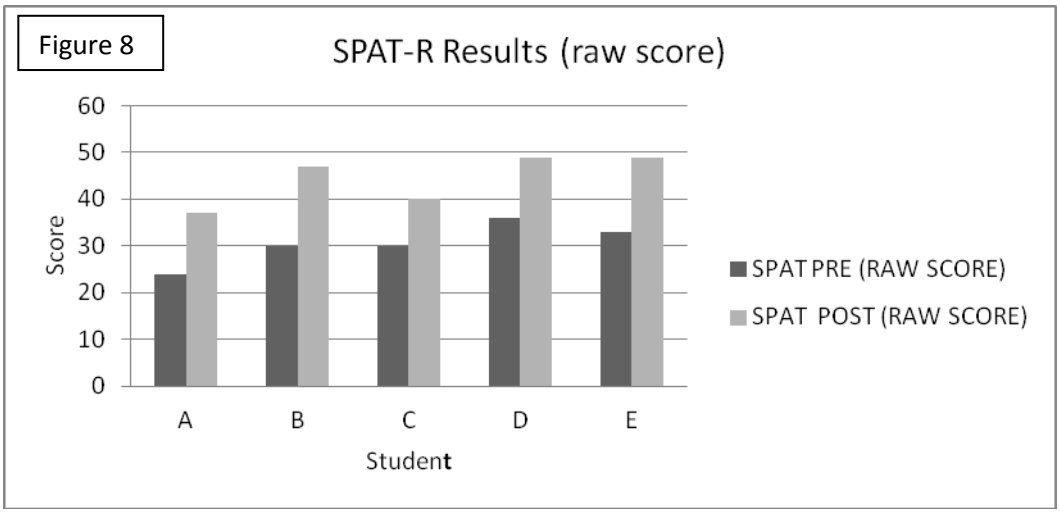

Trends for the group indicate growth in their knowledge of five letter rime units. All students were able to make gains, the largest made by Student E with an increase of 43.1%, Student B followed with an improvement of 35.2%, then Student A with an improvement of 33.3%. Student C and D both took longer to try and decode a selection of the five letter rime units; Student C made a gain of 29.4% and student D an improvement of 25.4%.

These results show each student's learning trend increased from the intervention, supporting that explicit instruction to these 'at risk' students is beneficial in building their ability to segment and blend words.

SPAT-R test

This test was administered to assess participant's phonological knowledge. The test is administered with a teacher asking test participant questions that target their ability to identify phonemes, segment, blend and reorganise. The raw score is taken out of sixty possible points. From this raw score a percentile can be sourced from the SPAT-R manual.

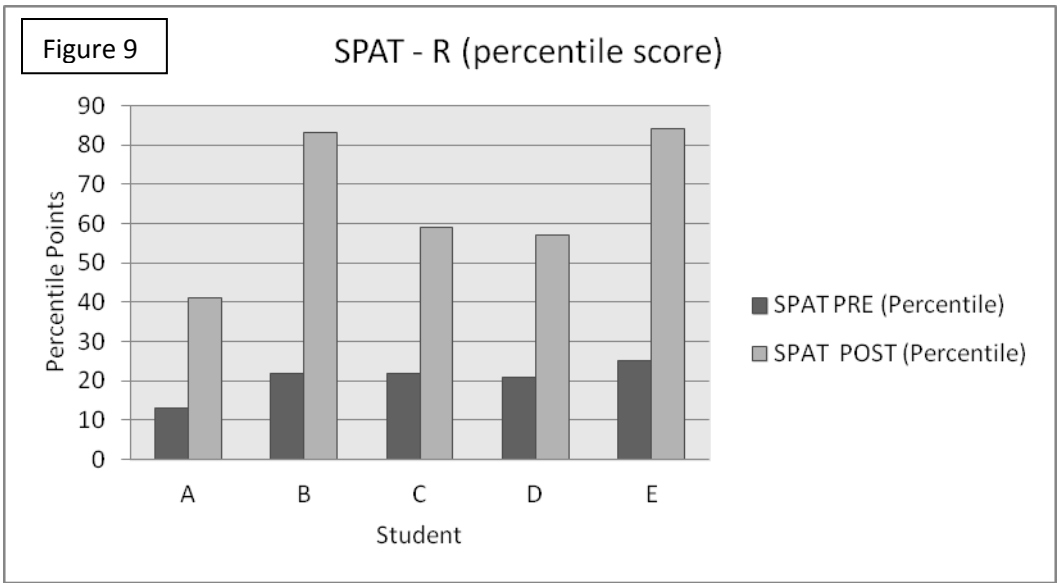
Figure 8




Results from pre testing indicate that students whilst having phonological knowledge all scored below the median for their years of schooling respectively. Students D and E scored the highest in post testing however they both scored higher in the pre-testing. Student E had an improvement of 26.6% and Student D improved

by 21.6%. Student B had a slightly increased gain in comparison with his peers improving by 28.3%. Student A had a gain of 21.6%, whilst Student C had an improvement of 16.6%.
The trend displayed within the group indicates that the intervention was effective in assisting students to build on their phonological knowledge. With all students achieving the median or higher for their years of schooling, at the completion of pre-testing.

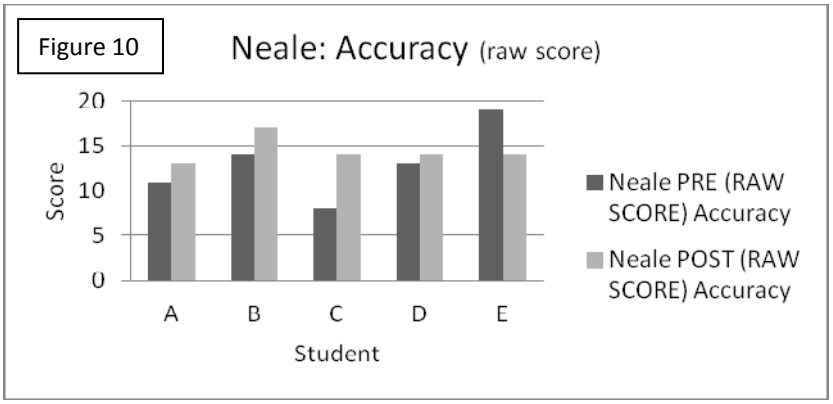
Figure 9




The percentile scores also indicate that explicit teaching through the intervention has assisted students in making gains in their knowledge. Student A had the smallest increase of 28 percentile points.
Student C had an increase of 37 percentile points, while Student D had an increase of 36 percentile points.
Student B and E had the largest increase of percentile points both achieving 61 (B) and 59 (E) respectively.
It is important to note all Students A, B, D, E were ranked based on two years of schooling whilst Student D is ranked on three years of schooling.

Neale Analysis of Reading Ability

Figure 10




The group trend supports the hypothesis in assisting students to read in prose with increase accuracy; with four out of five students achieving this, the exception Student A. Whilst figure 10 shows her accuracy dropped figure 12 highlights that her rate increased; her raw time in rate during pre-testing was: 801 seconds and in post-testing it was: 359 seconds. Her comprehension however lowered in post-testing her rate of reading could have contributed to this, please refer to figure eleven.
Student D increased his accuracy by a point as represented in figure ten. His rate as shown in figure twelve increased by 15.8 whilst his comprehension dropped by a question as shown in figure 11. This is unlike

Student E whose rate saw her accuracy drop off. Student D was reading with improved speed and accuracy but this did not assist his comprehension.
Student B was able to improve his scores for his accuracy by three passage points and he was able to maintain his comprehension scores but his rate slowed according to post-testing.
Student C and Student A were able to improve their scores for accuracy, comprehension and rate (as shown in figures 10-12). Student A was able to increase her rate by double and improved her comprehension by 3 in figure 11 in contrast to her not scoring at all during pre-testing. She was also able to improve her accuracy by 2 points. Student C was able to improve his accuracy by 7 points, his comprehension improved by a question and his rate by 8.
The group trend for comprehension has varying results. The group trend for rate indicates four of the five within the study were able to increase their speed as they read.

Figure 11

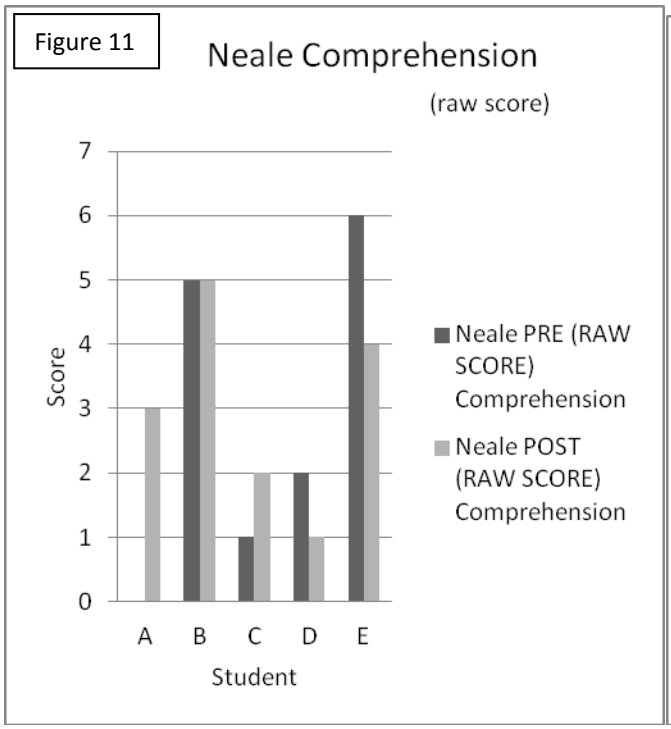



Figure 12

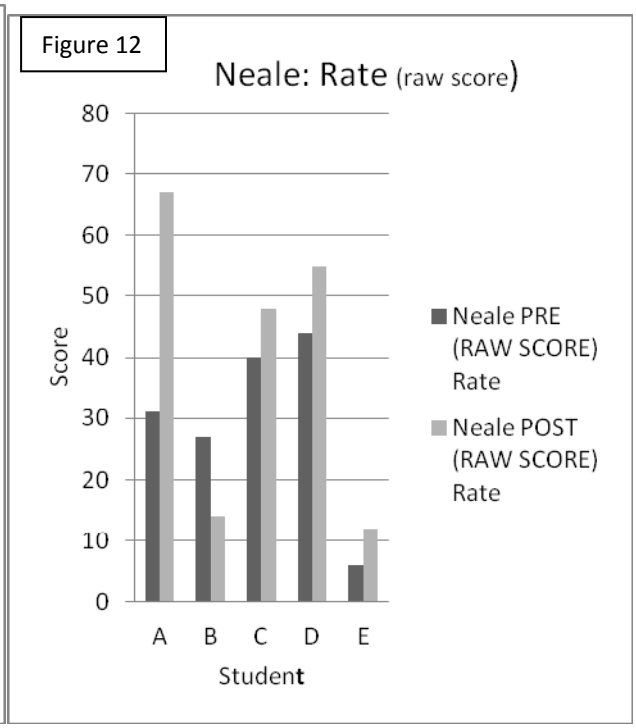
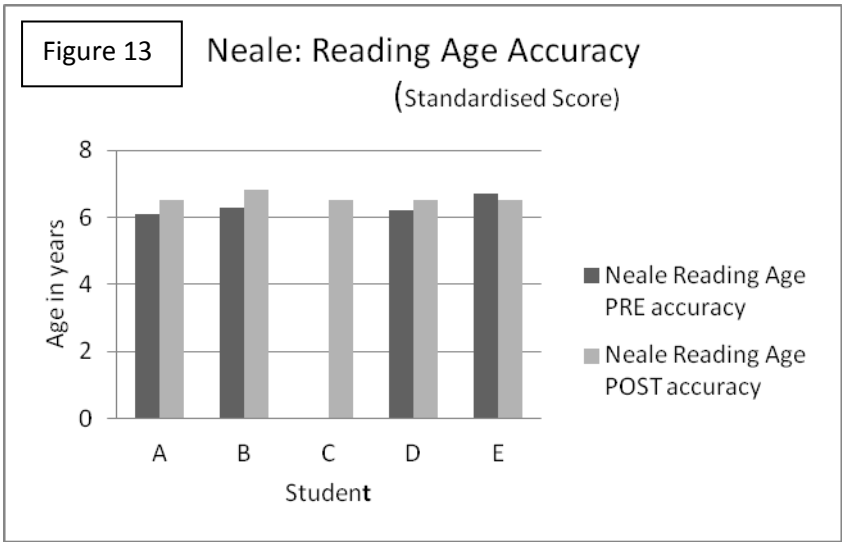



Figure 13

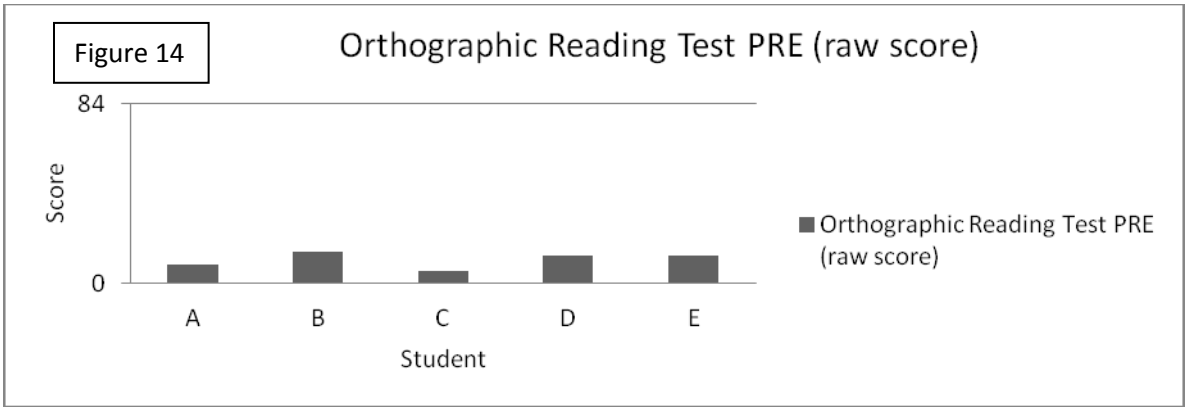



Referring to figure 13 above the group trend indicates four from the five students improved their reading age score. There was a slight drop to Student E reading age to 6.8 years in post-testing but this does correlate to

her actual age. Student B reached a month higher than his chronological age reaching a post-testing score of 6.8 years. Students A, C, D, all scored a reading age of 6.5 years whilst all improved this still leave them twelve months younger in reading age than their chronological age is.

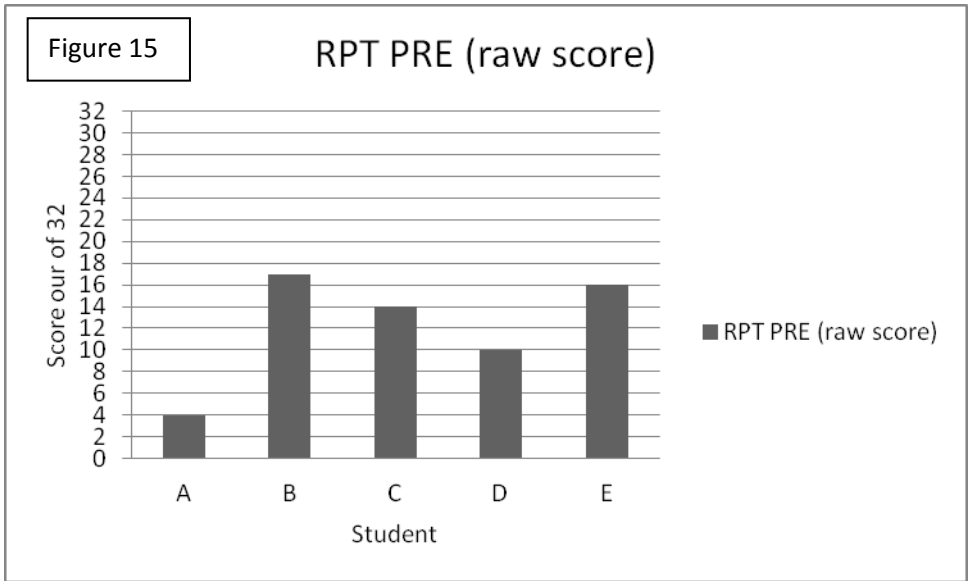
*Tests not continued for post-testing; Orthographic Reading Test and the Reading Progress Test*

Figure 14




The trend for the group showed students all scored below 20 and were spread inconsistently across three, four, five and six letter words. This assessment is most often given to students in Years Three to Six and as the students being targeted by this intervention were at risk Year One students it was not used as a post-test but will be recommended for students in their later years of schooling, As currently it highlights similar information in comparison to the Rime Unit Test.

Figure 15




The Reading Progress Test (RPT) is an assessment aimed at reading prose and comprehension as the intervention was targeting accuracy the Neale was selected as the only post-test as it specifically measured accuracy as well as comprehension. Two comprehension assessments were not required. Student A testing was discontinued after an hour she was unable to answer any more questions. Student D needed repeated instruction for how to fill in an answer and he selected two answers for some questions even though all students were instructed to only select one answer, he was able to answer ten questions accurately. Students B, C and D were able to follow the verbal instructions and were the first three to complete the assessment.

## Discussion

This study examined the explicit instruction of segmenting and blending to assist at risk year one students to improve their word reading accuracy in prose. The post-testing results for this study show sizeable improvements to participants' knowledge. All participants attended the ten consecutive sessions and were all present for the day set aside for pre and post testing.

Student sessions ran through the first hour of a literacy block. Through onset and rime students reviewed prior sessions, then blended, segmented, read prose that consisted of the particular rime unit, students were then able to blend and segment independently and re-joined the group to review the session with an explicit sentence of what they had learnt. The session was modelled to be similar to that of an ERIK session but used none of the ERIK materials as it is a recommendation of this report that these students be considered for the school run ERIK program for year two next year.

It was hoped through this study participants would be able to carry out a session with very little teacher direction once they were familiar with the session tasks. However this did not occur as participants in one particular session were unable to work responsibly without teacher direction. The cause was the need for two students to finish first and in creating a race scenario were both unable to complete the task to a satisfactory level. If the study was conducted again, either for a longer period of time or with another group of participants, it may be possible to allow the session to be run without the need for constant teacher direction. As Munro has noted reading underachievers are less likely to direct and regulate the use of reading strategies. (Munro J 2011) The participants when reading as a group were reminded about what strategies they could you when they came across unfamiliar words as in the first two sessions students only used a strategy of using the initial letter and Distinct Visual Features.

From post-testing it is evident all students were able to make gains in their RAN scores. A factor worth further investigation is the times recorded for RAN-L (letters) in comparison to RAN-D (digits) which were slightly lower. Student E making the most considerable gain in speed, however this could have contributed to Student E's Neale results for accuracy; as her rate of reading increased but her accuracy decreased.

As stated within the introduction students who are at risk readers could have learnt about letters and their correlating sounds, they are unable consistently use these to segment the sounds of a word and then blend them into a word accurately. (Munro, J. 2011) This was evident in the Rime Unit Test where students in pre-testing were able to retrieve some grapheme/phoneme knowledge but then relied on Distinct Visual Features when attempting to blend the word was unsuccessful. The students reduced their use of DVF in post-testing all making gains. Student B and C through post testing had difficulty in identifying the correct vowel and associated sound. Further instruction should be given to these students with an explicit focus on vowel sounds. All students in post-testing made gains in their ability to read three, four and five letter rime units.

With encouragement and repeated exposure young readers will learn to recognise such "chunks" automatically and apply their knowledge by using analogy to words they have never before seen or spelled. This will enable young learners to actively seek out patterns (Love and Reilly 2004) Through this study the students worked with some three letter rime units but were predominately exposed to four letter rime units this could have contributed to the gains made by all students in their ability to read an increased range of four letter rime units. There was also an improvement in the recall of five letter rime units, if the study had been

extended to twenty sessions it would have be valuable to include a bigger range of dependable rime units from the 37 dependable rime unit list.

> Readers who know the relevant chunks can learn a word such as interesting more easily because few connections are required to secure a word into memory (Ehri 2005).

According to Ehri's alphabetical phase theory readers mainly use grapheme/phoneme knowledge in the partial and full alphabetic stages to remember the spellings of words (Ehri 2005) this is consistent with the results of this study and from the student data collected it is suggested that the participants in this study are at the partial alphabetic stage in the process of moving towards a full alphabetic stage.

The results of this study in regard to the assessment taken of phonological knowledge from the SPAT-R test for students A and B would support the statement made by (Christo and Davies 2008) that students who are strong in rapid naming may be able to compensate for poor phonological processing skills. The SPAT-R raw scores and percentile rankings both reflected gain made by all students. An area all students could be further investigated is the skill of deleting of the internal, for example take /r/ from crash.

Four of the five participants were able to increase their accuracy when reading prose as assessed by the Neale analysis. Student E being the exception but her ability to improve her RAN speed was an important outcome from the intervention and as she becomes more proficient in reading at a faster rate her ability to read with accuracy will again improve. Student B was the only student not to increase his rate but as he became more accurate at the rate his was reading. Further intervention is needed for these at risk year one students with their improved results still showing that in comparison to their chronological age and their reading age Student B was within a month, Student E five months however Students A, C and D all scored below their age by at least ten months. Student A had the largest deficit of fourteen months below her chronological age.

Implications for teaching practice to take from this study are;

- For the school to consider the findings of this study in preparation for next year's grade ones students. If the process of explicit teaching of segmenting and blending is implemented it may assist in building students ability to read prose with more accuracy.
- For this particular group of participants an extension of this intervention is suggested to continue within their classroom, if behaviour is a concern the group may need to be spilt into two smaller groups.
- It is also recommended that participants from this study be considered for the ERIK (Enhance Reading Intervention for at risk students) in take for year two to continue to build students orthographic skills.
- It is also recommended participants from this study continue to be exposed to explicit phonological instruction
- It is recommended the school encourages teachers to seek more detailed assessment when a child presents with a reading difficulty across the Junior Year Levels. The tests used in this study would provide teachers with data that could practically assist them in planning the instruction their students need.

Possible directions for further research after reviewing the results from this study are the differing results between the RAN-L and RAN-D test scores. Why students within this study recorded faster RAN-L scores. Also why only Student B noticed the pattern of rime units within the rime unit test, as all participants

completed the same tasks over the ten sessions but this student could see the pattern whilst the other four could not.
Due to the difficulties at risk students have with decoding and the attention this takes as they read, how can their capacity to comprehend as they read be improved as the results of this study show although students rate and accuracy was able to improve their comprehension which was not targeted through this intervention did not improve.

This study supports the findings of (Rupley, Blair and Nichols 2009) that to master the reading process the following five instructional tasks are required.

- Phonemic awareness
- Phonics
- Fluency
- Vocabulary
- Comprehension

Although these are general points they are necessary in the acquisition of reading, students who have reading difficulties need to be assessed and explicitly instructed to build any areas of deficiency. This study has valued that an effective early reading intervention strategy represents a powerful target of opportunity for preventing a host of later difficulties (Cummings, et al., 2011).

## References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Cummings, K.D, Dewey, E.N, Latimer R.J and Good, R.H (2011) Pathways to Word Reading and Decoding: The Roles of Automaticity and Accuracy. *School Psychology Review.* 2011 Volume 40 no.2 p 284-295

Ehri, L.C. (2005) Learning to Read Words: Theory, Findings and Issues. *Scientific Studies of Readings* 9 (2) p. 167-188.

Christo C and Davies J (2008) Rapid Naming and Phonological Processing as Predictors of Reading and Spelling. *The California School Psychologist* Volume 13 p. 7-18.

Wesseling, R. amd Reitsma, P. (2000) The transient role of explicit phonological recoding for reading acquisition. *Reading and Writing: An Interdisciplinary Journal* 13 p. 313-336

Love and Reilly (2004) let's talk about Rhyme, Rime and Analogy. www.loveandreilly.com.au Printed: 20/09/11 via Melbourne University Library website.

Munro, J.K (2011) EDUC 90247 Literacy Intervention Strategies Lecture Notes 2011. p 29-29


**Resources**

Neale Analysis of Reading Ability (1999) The Australian Council for Educational Research Ltd. M.D. Neale

Neilson Southerland Phonological Awareness Test – Revised (2003)

Rime Unit Test – Dalheim 2004

Rapid Naming Ability – letters & numbers

Love. E & Reilly S, (1995) A Sound Wave, Longman Australia Pty. Limited

PM Benchmark readers levels 7 through to 14

Orthographic Analysis

Reading Progress Test (1996) ACER Hodder & Stoughton Ltd.

# Appendices

EXCEL GRAPH of STUDY DATA

| Name | Control = 0 Teaching=1 | Age in MONTHS | Gender 0=Male 1= Female | Years of Schooling | ESL No=0 Yes=1 | LNSLN funding 0=SLD 1=ID 2=Asp | Earlier Intevention No=0 RR=1 Bridges=2 ERIK=3... | Text Level prior to intervention | Ob Survey / Letter ID | Attendance | Rime Unit PRE (RAW SCORE) | Rime Unit POST (RAW SCORE) | Rime Unit (3 letters) PRE | Rime Unit (3 letters) POST | Rime Unit (4 letters) PRE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1 | 91 | **1** | 2 | 0 | 0 | 0 | 10 | 54 | 10 | 44 | 93 | 18 | 21 | 22 |
| B | 1 | 81 | **0** | 2 | 0 | 0 | 0 | 9 | 52 | 10 | 71 | 109 | 22 | 23 | 37 |
| C | 1 | 87 | **0** | 2 | 0 | 0 | 0 | 9 | 52 | 10 | 36 | 89 | 18 | 22 | 15 |
| D | 1 | 90 | **0** | 3 | 0 | 0 | 0 | 10 | 54 | 10 | 54 | 100 | 17 | 21 | 25 |
| E | 1 | 82 | **1** | 2 | 0 | 0 | 0 | 13 | 54 | 10 | 49 | 107 | 18 | 24 | 26 |
| F | 1 | | | | | | | | | | | | | | |
| G | 1 | | | | | | | | | | | | | | |
| H | 1 | | | | | | | | | | | | | | |

| Rime Unit (4 letters) POST | Rime Unit (5 letters) PRE | Rime Unit (5 letters) POST | SPAT PRE (RAW SCORE) | SPAT POST (RAW SCORE) | SPAT PRE (Percentile) | SPAT POST (Percentile) | RANL PRE | RANL POST | RAND PRE | RAND POST | Neale Reading Age PRE accuracy | Neale Reading Age POST accuracy | Neale PRE (RAW SCORE) Accuracy | Neale POST (RAW SCORE) Accuracy |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 51 | 4 | 21 | 24 | 37 | 13 | 41 | 37.5 | 31.6 | 44.7 | 42 | 6.1 | 6.5 | 11 | 13 |
| 56 | 12 | 30 | 30 | 47 | 22 | 83 | 39.8 | 33.7 | 49.5 | 44.2 | 6.3 | 6.8 | 14 | 17 |
| 49 | 3 | 18 | 30 | 40 | 22 | 59 | 38.7 | 32.7 | 41.4 | 37.3 | * | 6.5 | 8 | 14 |
| 54 | 12 | 25 | 36 | 49 | 21 | 57 | 44.8 | 35.3 | 45.5 | 38.7 | 6.2 | 6.5 | 13 | 14 |
| 56 | 5 | 27 | 33 | 49 | 25 | 84 | 84.5 | 48.4 | 126.5 | 105.1 | 6.7 | 6.5 | 19 | 14 |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | |

| Neale PRE (RAW SCORE) Comprehension | Neale POST (RAW SCORE) Comprehension | Neale PRE (RAW SCORE) Rate | Neale POST (RAW SCORE) Rate | Neale PRE (Percentile rank) Accuracy | Neale PRE (Percentile Rank) Comprehension | Neale PRE (Percentile Rank) Rate | Neale PRE (Stanine) Accuracy | Neale PRE (Stanine) Comprehension | Neale PRE (Stanine) Rate | Neale POST (RAW SCORE) Accuracy | Neale POST (RAW SCORE) Comprehension | Neale POST (RAW SCORE) Rate | Neale POST (Percentile rank) Accuracy | Neale POST (Percentile Rank) Comprehension | Neale POST (Percentile Rank) Rate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 3 | 31 | 67 | 16 | 0 | 40 | 3 | 0 | 4 | 13 | 3 | 67 | 17 | 11 | 90 |
| 5 | 5 | 27 | 14 | 60 | 61 | 66 | 5 | 6 | 6 | 17 | 5 | 14 | 35 | 31 | 7 |
| 1 | 2 | 40 | 48 | 11 | 1 | 53 | 3 | 1 | 5 | 14 | 2 | 48 | 20 | 5 | 73 |
| 2 | 1 | 44 | 55 | 9 | 2 | 37 | 2 | 1 | 4 | 14 | 1 | 55 | 7 | 1 | 52 |
| 6 | 4 | 6 | 12 | 33 | 27 | 1 | 4 | 4 | 1 | 14 | 4 | 12 | 20 | 23 | 6 |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

| Neale POST (Stanine) Accuracy | Neale POST (Stanine) Comprehension | Neale POST (Stanine) Rate | RPT PRE (raw score) | | Orthographic Reading Test PRE (raw score) |
|---|---|---|---|---|---|
| 3 | 3 | 8 | 4 | | 9 |
| 4 | 5 | 2 | 17 | | 15 |
| 3 | 2 | 6 | 14 | | 6 |
| 2 | 1 | 5 | 10 | | 13 |
| 3 | 3 | 2 | 16 | | 13 |
| | | | | | |
| | | | | | |
| | | | | | |

***Session Two***

Resources: box strips, counters, sentence copies for students, computer access, magnetic boards and letters,

| Time Allocation | Sequence | Task | Student Response |
|---|---|---|---|
| 4 mins | Review skills taught in previous session | Review beginning/final sounds briefly, segmenting and 'an' words<br><br>T: **In the last session we worked on the beginning and final sounds we can hear in words. I am going to say two words and I would like you to tell me the first sound of the word. Pipe, home. Now I am going to say another two words this time tell me what the final sound of the word is. Broom, frog.**<br><br>**T: In the previous session we had a go at segmenting sounds using our strip (show strip). Today we are going to have another go at some of the words from the previous session. The first word is man**<br>Show student m-a-n; ask **How many sounds are in the word man?**<br><br>**T: We also made words using the rime unit 'an' we did this by changing the letters in front of the word. These letters are called the onset. Together onset and rime make a word. Watch as I use the magnetic letters to show you how the onset helps the rime become a word.**<br>**M an man m an man m an man** | |
| 5mins | Blending | Magnetic letters: students require the rime unit 'ip' & 'ell' in the same colour letters for example 'ip' both blue, 'ell' red. Teacher models how to use ip to create words.<br>**T: You each have the vowel i and the constant p on your boards. These two letters make the rime unit 'ip'. What words can you think of that have the sound 'ip'.**<br>**Let's make some together.** Take a strip, student suggests and builds the word highlighting to students the onset and the rime. Then say the word as an onset/ then rime. Then put it together by moving your finger. Then space the onset and rime then put it together.<br><br>Repeat this process for the rime unit 'ell'<br><br>(possibly film session for review purposes with students or for teacher benefit) | |
| 4 mins | Segmenting | Using box strips students will tap out words said aloud by the teacher.<br><br>T: **Take a strip each; ask 'what did we do with this strip yesterday?**<br>**Today we are going to use the strip to help us tap out sounds. I will read you a list of words and you will need to tap out the sounds you hear. Pop, mat, lip.** | |

| | | | |
|---|---|---|---|
| | | Teacher feedback.<br><br>**T: Using our strip I am now going to pass you some counters. We are going to have 3 counters each because I am going to read you three sound words. We are going to place the counters under each box 1-3. I am going to have a go first. If I said the word pig. I would move each counter up into a box and then trace my finger under the word as I said it after segmenting it.**<br>3 counters-three sound words/ 4 counters- four sound words<br>Ip & ell<br><br>**T: First we will segment ip words; lip, tip, pip, sip. Now we will segment ell words; fell, bell, sell, tell**<br><br>T: **This is a great task to think about when you are trying to read and spell a word.**<br>Teacher feedback to students | |
| 4 mins | Reading prose | **T: We have just completed blending and segmenting these two skills help us when we are reading and writing.**<br><br>**Together we are going to read this short story about kip;**<br><br>**Kip was so happy to be home he did a flip, but he did not land well. So he rang his small bell and called for his mum.**<br><br>**What is the onset in the word bell? What is the rime?**<br>**What is the onset in the word lip? What is the rime?** | |
| 4 mins | Independent blending | **T: You now have four minutes on the timer to have a go at building words using the blending bowl. You will need to select the rime ip**<br><br>Word blender is an ICT game which says the onset and rime separately and as speeds up saying the onset and rime unit a word is read. Students will need to be instructed as to what rime unit they are using. Demonstrate the way it works. | |
| 4 mins | Explicitly state skills worked on today. | **T: What words were blended in the bowl? Was it a bowl?**<br><br>**T: Review what is a rime unit? What is an onset? Why do we need run sounds together?**<br><br>**T: Why did we use the magnetic letters today to make words? What did the letters show us about words?**<br>**How does using the boxes and counters to tap out sounds help us if we were reading a word we weren't sure of?**<br><br>Discuss anything that the students raise. | |

**Session Four**

Resources: box strips, counters, sentence copies for students, computer access, magnetic boards and letters,

| Time Allocation | Sequence | Task | Student Response |
|---|---|---|---|
| 4 mins | Review skills taught in previous session | T: **In the last session we worked on the beginning and final sounds we can hear in words. I am now going to say three words and I would like you to tell me what the final sound is; church, pig, red.**<br>Review footage from previous session and share the following.<br>**T: We also made words using the rime unit 'ap' and 'ug' we did this by changing the letters in front of the word. These letters are called the onset. Together onset and rime make a word. What words was I able to make when I used the magnetic letters to show you how the onset helps the rime become a word??**<br>Teacher refers to previous session list of words created.<br><br>Together reread the prose from the previous session. Identifying the onset and rime units.<br>**T: In the last session we read about kip, let us read it again together, you can have a few seconds to look over it before we read it.** | |
| 5mins | Blending | Magnetic letters: students require the rime unit 'ay' & 'in' in the same colour letters for example 'ay' both blue, 'in' red.<br>Teacher models how to use 'ay' to create words.<br>**T: You each have the vowel a and the constant p on your boards. These two letters make the rime unit 'ay'. What words can you think of that have the sound 'ay'.**<br>**Let's make some together.** Take a strip, student suggests and builds the word highlighting to students the onset and the rime. Then say the word as an onset/ then rime. Then put it together by moving your finger. Then space the onset and rime then put it together.<br><br>Repeat this process for the rime unit 'in'<br><br>(possibly film session for review purposes with students or for teacher benefit) | |
| 4 mins | Segmenting | Using box strips students will tap out words said aloud by the teacher.<br>Teacher is required to cue students' memory of previous task.<br><br>**T: Using our strip I am now going to pass you some counters. In our last session we used counters and our fingers to show what sounds we were hearing.**<br>**We are going to have 3 counters each because I am going to read you three sound words. We are going to place the counters under each box 1-3.** | |

| | | | |
|---|---|---|---|
| | | **I am going to have a go first. If I said the word sip. I would move each counter up into a box and then trace my finger under the word as I said it after segmenting it.**<br>3 counters-three sound words/ 4 counters- four sound words<br>ay & in<br><br>**T: First we will segment ay words; day, hay, say, bay, delay. Now we will segment in words; pin, bin, tin, chin.**<br>**T: This is a great task to think about when you are trying to read and spell a word.**<br>Teacher feedback to students | |
| 4 mins | Reading prose | **T: We have just completed blending and segmenting these two skills help us when we are reading and writing.**<br><br>**Together we are going to read this short story about Kelly and her day.**<br><br>**What is the onset in the word? What is the rime?**<br>**What is the onset in the word? What is the rime?** | |
| 4 mins | Independent blending | **T: You now have four minutes on the timer to have a go at building words using the blending bowl. You will need to select the rime ay & in.**<br>*Students may need it written down<br><br>Word blender is an ICT game which says the onset and rime separately and as speeds up saying the onset and rime unit a word is read. Students will need to be instructed as to what rime unit they are using. Demonstrate the way it works. | |
| 4 mins | Explicitly state skills worked on today. | **T: What words were blended in the bowl?**<br>**T: Review what is a rime unit? What is an onset? Why does running sounds together help us?**<br><br>Discuss anything that the students raise. | |

**Session Six**

Resources: box strips, counters, sentence copies for students, word wheel/ slide, magnetic boards and letters,

| Time Allocation | Sequence | Task | Student Response |
|---|---|---|---|
| 4 mins | Review skills taught in previous session | T: **In the last session we worked final sounds we can hear in words. I am now going to say three words and I would like you to tell me what the final sound is; clap, sell, day, tin, can.** | |

| | | | |
|---|---|---|---|
| | | Review footage from previous session and share the following.<br>**T: We also made words using the rime unit 'ack' and 'ing' we did this by changing the letters in front of the word. These letters are called the onset. Together onset and rime make a word. What words was I able to make when I used the magnetic letters to show you how the onset helps the rime become a word?**<br>Teacher refers to previous session list of words created.<br><br>Together reread the prose from the previous session.<br>Identifying the onset and rime units.<br>**T: In the last session we read about Faye and the sack she found, let us read it again together, you can have a few seconds to look over it before we read it.** | |
| 5mins | Blending | Magnetic letters: students require the rime unit 'ash' & 'ick' in the same colour letters for example 'ash' both blue, 'ick' red.<br>Teacher models how to use 'ash' to create words.<br>**T: You each have the vowel a and the constants sh on your boards. These two letters make the rime unit 'ash'. What words can you think of that have the sound 'ash'.**<br>**Let's make some together.** Take a student suggestion and build the word highlighting to students the onset and the rime. Then say the word as an onset/ then rime. Then put it together by moving your finger. Then space the onset and rime then put it together.<br>**T: You have in front of you now the letter cluster (rime card) for 'ick'. Together we are going to build words using these onset cards** (show students cards). **We can make the word tick by putting the t card next to the ick card. Can you put the word in a sentence?** (oral)<br>(possibly film session for review purposes with students or for teacher benefit) | |
| 4 mins | Segmenting | Using box strips students will tap out words said aloud by the teacher.<br>Teacher is required to cue student's memory of previous task.<br>**T: Using our strip I am now going to pass you some counters. In our last session we used counters to show what sounds we were hearing.**<br>**We are going to have 4 counters each because I am going to read you four sound words. We are going to place the counters under each box 1-4.**<br><br>**I am going to have a go first. If I said the word crab. I would move each counter up into a box and then trace my finger under the word as I said it after segmenting it.**<br>4 counters- four sound words<br><br>Add more counters<br>**T: First we will segment 'in' words; skin, spin, twin.** (feedback to students) **Now I am going to read some more words with four sounds and I would like you to tell me what rime unit is in the word; spat, slat, clan, bran, track, smack, slack, stuck, fling, bring.**<br>**T: This is a great task to think about when you are trying to** | |

| | | | |
|---|---|---|---|
| | | **read and spell a word.**<br>Teacher feedback to students | |
| 4 mins | Reading prose | **T: We have just completed blending and segmenting, these two skills help us when we are reading and writing.**<br><br>**Together we are going to read this short story about bricks and building.**<br>**What is the onset in the word? What is the rime?**<br>**What is the onset in the word? What is the rime?** | |
| 4 mins | Independent blending | **T: You now have four minutes on the timer to have a go at building words using the word wheel/ word slide. You will need to select the rime ash.**<br>*Students may need it written down<br>When students return to their seat they will require ash letter cluster cards and paper to record possible ash words.<br>**T: Now I would like you to record ash words onto your paper using the letter cluster cards.** Read with students through each of the onset sounds. **Let us read through the words you have created together.**<br>Word blender is an ICT game which says the onset and rime separately and as speeds up saying the onset and rime unit a word is read. Students will need to be instructed as to what rime unit they are using. Demonstrate the way it works. | |
| 4 mins | Explicitly state skills worked on today. | **T: What words were in the word slide/ word wheel? Blending bowl?**<br>**T: Review what is a rime unit? What is an onset? Why is it important to know how a word is put together?**<br><br>Discuss anything that the students raise. | |

**Session Eight**

Resources: box strips, counters, sentence copies for students, word wheel/ slide, magnetic boards and letters,

| Time Allocation | Sequence | Task | Student Response |
|---|---|---|---|
| 4 mins | Review skills taught in previous session | T: **In the last session we worked final sounds we can hear in words. I am now going to say three words and I would like you to tell me what the final sound is;**<br><br>Review footage from previous session and share the following.<br>**T: We also made words using the rime unit 'ain' and 'ump' we did this by changing the letters in front of the word. These letters are called the onset. Together onset and rime make a word. What words was I able to make when I used the magnetic letters to show you how the onset helps the rime become a word?**<br>Teacher refers to previous session list of words created.<br><br>Together reread the prose from the previous session.<br>Identifying the onset and rime units.<br>**T: In the last session we read 'The Grump' let us read it again together, you can have a few seconds to look over it before** | |

| | | | |
|---|---|---|---|
| | | **we read it.** | |
| 5mins | Blending | Magnetic letters: students require the rime unit 'aw' & 'ank' in the same colour letters for example 'ump' both blue, 'ain' red. Teacher models how to use 'ump' to create words.<br>**T: You each have the vowel 'a' and the constant 'w' on your boards. These two letters make the rime unit 'aw'. What words can you think of that contain 'aw'.**<br>**Let's make some together.** Take a student suggestion and build the word highlighting to students the onset and the rime. Then say the word as an onset/ then rime. Then put it together by moving your finger. Then space the onset and rime then put it together.<br><br>**T: You have in front of you now the letter cluster (rime card) for 'ank'. I would like you now to work as a group to make some words on these plates for me. You will need to create onset and rime plates.** (Show students blank cards).<br>Prompt students to put each word they create in a sentence.<br>(Allow students time to create their plates, observe the letter/sound choices students make).<br>(possibly film session for review purposes with students or for teacher benefit) | |
| 4 mins | Segmenting | Using box strips students will tap out words said aloud by the teacher.<br><br>**T: Collect a strip and 4 counters, set your card up.**<br><br>**T: First we will segment 'op ' word; crop, drop, flop, plop, slop, stop.** (feedback to students) **Now I am going to read some more words with four sounds and I would like you to tell me what rime unit is in the word; clan, bran, plan, flan, scan, span.**<br><br>Teacher feedback to students | |
| 4 mins | Reading prose | **T: We have just completed blending and segmenting, these two skills help us when we are reading and writing.**<br>Together we are going to read this short story about Frank.<br>**What is the onset in the word? What is the rime?**<br>**What is the onset in the word? What is the rime?** | |
| 4 mins | Independent blending | **T: You now have four minutes on the timer to have a go at building words using the word wheel/ word slide. You will need to select the rime ain/ ump.**<br>*Students may need it written down<br>When students return to their seat they will require ash letter cluster cards and paper to record possible ash words.<br>**T: Now I would like you to record ain/ ump words onto your paper using the letter cluster cards.** Read with students through each of the onset sounds. **Let us read through the words you have created together.**<br>Word blender is an ICT game which says the onset and rime separately and as speeds up saying the onset and rime unit a word is read. Students will need to be instructed as to what rime unit they are using. Demonstrate the way it works. | |

| | | | |
|---|---|---|---|
| 2 mins | Written orthographic | **T: After using the rime units 'aw' and 'ank' I would like you to have a go at writing a sentence for me.** | |
| 2 mins | Explicitly state skills worked on today. | **T: What words were in the word slide/ word wheel? Blending bowl?**<br>**T: What words can you now read?**<br><br>Discuss anything that the students raise. | |

Example of BLM card sheets students used.

| | | | |
|---|---|---|---|
| | aw | | aw |
| | aw | | aw |
| | aw | | aw |
| | aw | | aw |
| | aw | | aw |

| | | | |
|---|---|---|---|
| | ip | | ick |
| | ip | | **ick** |
| | ip | | ick |
| | ip | | i ck |

An example of short prose students read:

Frank was as big as a tank, when he swam he always sank. His mother called "Help" the bank man who was planking on the pool wall dived in to save him. Frank thanked the bank man for saving him.