Explicitly teaching at risk year 2 students the strategy of analogy through onset and rime improves word reading accuracy, in isolation and in prose.

Abstract

Learning to read is a complex task for many students. The reader requires the skills to be able to understand the meaning of the text, use knowledge of how the English language is structured and interpret the visual features. The reader needs to integrate all these cuing systems. The students in this study are insufficient in one of the cuing systems. They experience difficulties with decoding and recoding words. Those who experience difficulties often use an ineffective strategy, have an insufficient knowledge of effective strategies or are unable to use an alternative strategy. This research explores effective strategies such as analogy and how it impacts on reading success.

The hypothesis of this action research project explores how explicitly teaching at risk year 2 students the strategy of analogy through onset and rime improves word reading accuracy in isolation and in prose. The study compares the results of two groups of at risk year 2 students, a Control group and an Intervention group. Both groups took part in a number of pre and post assessments but only the Intervention group took part in ten explicit lessons on the strategy of analogy.

The data gathered indicated improvement over a five week period for all participants however it was the Intervention group that had the greater improvement. The findings of the study indicated that the gains made by the Intervention group were affected by the explicit teaching of the strategy of analogy through participating in the series of lessons.

The implications of this research demonstrate the need for students to be explicitly taught strategies. These important stages in the developmental sequence in learning to read are vital and need to be taught. The study also indicates the need for schools to make sure they use a number of assessing tools so that data can be compared accurately and not be misguiding. Assessment is important as it is a source of informative data that guides best practice.

Introduction

The research conducted on how readers' best learn to decode words varies. Munro,(1985; cited in Munro 2011) suggests that readers process meaning of a text at a number of levels. The reader manages and employs strategies that will allow them to be successful in understanding the text. At a word level successful readers use knowledge of how a word is written, said or what it means. They do this by matching the printed word with the information previously stored. They convert letters into a series of known sounds and put them into functional parts that make sense. They see known word clusters that enable them to work out an unknown word in larger parts. The reader processes words in the easiest and quickest form they know. Successful readers are equipped with a variety of strategies that allow them to slow down briefly to process an unknown word and then move on quickly. Munro, (2002; cited in Munro 2011) suggests that those who are experiencing difficulties when processing at a word level may in fact have insufficient storage of how words are said, an ineffective word meaning bank and difficulties learning sounds and patterns in words. He suggests this is why some readers continue to have trouble reading unfamiliar words. It is not only the way they recode unfamiliar words that cause difficulties, often they employ the wrong strategy. Readers who experience difficulties use an ineffective strategy, have an insufficient knowledge of effective strategies or are unable to use an alternative strategy. This research explores effective word learning and whether strategies such as analogy impacts on reading success.

Theorists argue over the best way to teach readers these word decoding skills. Most of the arguments stem from research into whether readers are better off learning individual phonemes or using functional parts. Chew (1997) believes that readers need knowledge of letter sound relationship in order to understand the alphabetic code. Individual phonemes are easier to teach, are vital within a word and help with spelling. Others would suggest that to stay with a sound approach only can lead to other problems for readers when decoding. Fowler, Liberman & Shankweiler (1972; cited in Goswami 1991) believe that vowels are often the most difficult letters to sound out in a word and tend to be misread more often than consonants. Moustafa (1995) reflects on studies done and suggests that young children naturally are able to manipulate onset and rime without being taught and is an easier way to recode than breaking words into individual phonemes. This

research suggests that it is a natural cognitive process. Ehri & Robbins, (1992; cited in Moustafa 1995) would argue that early readers still need knowledge of letters to be able to read the parts within onset and rime. Smith, (1998; cited in Moustafa 1995) suggests that the brain can only make one decision at a time about what it sees. If the brain sees it as letters, it sees letters and if it sees it as words, then it sees a word. For those readers who store information incorrectly, reversing the brain's storage of words can be difficult to do. This may go towards explaining why some readers use only the one word decoding strategy. It is important that early readers are taught word decoding skills successfully before the brain stores the information incorrectly.

Whilst theorists deliberate over the best way to learn our phonological and orthographical code, Munro, (2011) believes that learning to read words is developmental and sequential. All skills are essential and to miss one may make learning to read difficult. Readers must link the spoken words they know to the written form. In this early stage young readers use strategies where they may memorise the word's features, use initial letters to predict with other cue information and use simple blending techniques. Munro, (2011) suggests that using letter – sound matching and distinctive visual features only, becomes less effective. Recoding letter by letter becomes too slow and attention demanding and the reader needs to move onto the next stage and learn to recode letter clusters. It is important that they make phonological links to these clusters and recall them quickly enough in order to blend them with other letter patterns. This forms the bases of their orthographic knowledge and they can recall words automatically or recode quickly, Munro suggests that this needs to be 'rapid'. In the next stage of Munro's developmental stages, readers are able to recode using phonemic knowledge by blending and looking at orthographic patterns to more words. They are able to manipulate sounds from one word to form another through a strategy called analogy. Reading then develops to the next stage where the reader is able to read words that contain more than one syllable. They are efficient at manipulating multi syllabic words, finding and using letter cluster functions within words. These stages are sequential and are important for readers to develop as they learn to read words.

A reader needs to learn to strategically problem- solve a range of unknown words and an effective tool is the strategy of analogy. Analogy uses orthographic and

phonological similarities to recode words based on known words. The strategy of analogy is where the readers can transfer knowledge of known words to decode unknown words. Munro, (1998) suggests that those readers who decode an unknown word letter by letter or pick a few letters to decide what the word may be, are not able to transfer their knowledge about words to recode others. Readers may recognise the shared letter units but if they do not have the skill of breaking the spoken words into functional parts (onset and rime), they will have difficulty transferring what they know about a word to another word. Clay, (2005) believes that learning to read or write by analogy is a complex process for some readers. The teacher needs to be aware of what they do and how readers can become easily confused. In the Reading Recovery program it is placed later in the learning sequence as it requires a 'considerable independence'. Glushko, (1981; cited in Moustafa 1995) suggests that readers store print words in a mental lexicon. When readers see a new word which contains the same letter sequence, they then 'activate the phonological information stored with the orthographic information.' This suggests that readers store rules about the words with orthographic and phonological features. They can apply these rules with other similar words stored in their mental lexicon and recode new words through the strategy of analogy. Savage, (1997) too suggests that using the strategy of analogy requires the reader to have a sufficient mental lexicon. Early readers often have a limited mental lexicon and an undeveloped storage system. In schools, it is suggested that the strategy of analogy be used with readers who are good print technicians and who are developing control over selecting processes to solve words. These readers are often decoding around text level 15. This validates Munro and Clay's idea that this strategy is best taught at a later stage in learning to read. White & Cunningham,(1990; cited in Goswami 1991) worked with primary aged 6 to 7 year olds in learning to decode by using analogy and believe it has made the greatest gains to their reading.

Goswami & Bryant,(1990; cited in Moustafa 1995) believe that it is easier for children to manipulate onset and rime from an early age and can do it without even being taught. An analogy can be made with words that hold similar phonological and orthographical patterns. It seems natural to use onset and rime with this strategy as they share these features. Goswami, (1991) found that children are able

to make more analogies when the shared letters are at the end of the word (rime) more than the beginning (onset).

Reading programs developed by Gaskins, Downer & Gaskin, (1986; cited in Goswami 1991) makes searching for analogies part of the teaching program in helping readers who experience difficulties. If using analogy is part of a developmental stage of learning to read words by independent readers, then it makes sense to explicitly teach this strategy. For readers experiencing difficulties, it is important that they are able to recode and blend letters and sounds together efficiently first. It needs to take into account the readers' mental lexicon and its role in aiding the strategy. It needs to be used with words that have phonological and orthographic similarities such as words with dependable rime, so it can be transferred effectively. It needs to be taught in naturalistic tasks that involves not only reading words in isolation but in prose. More importantly the strategy must be explicitly taught. This research project aims to do this.

Prediction: Explicitly teaching at risk year 2 students the strategy of analogy through onset and rime improves word reading accuracy in isolation and in prose.

Method

This study uses an OXO design which involves pre assessments, teaching and post assessments. The study was to compare two groups of students and the impact that analogy has on them as a reader. All participants chosen were involved in the pre and post assessments but only half were chosen to be a part of the teaching group. These students are named the Intervention group and those who did not participate in the teaching sessions are named the Control group. The students in the Intervention group were withdrawn from the classroom to participate in 10 teaching sessions that lasted approximately 30 minutes. These sessions involved learning the strategy of analogy using onset and rime tasks in prose and in reading words in isolation.

Participants

Students chosen to participate in this study were in their third year of schooling. Six students were chosen from two year 1 / 2 composite classes, all of which were year 2. Their ages ranged from 89 months to 109 months. All six students were identified as performing slightly lower than the rest of the year 2 students in their class. Through discussion with classroom teachers, all six students were identified as reading text level 20. It was observed through classroom notes that these students had been reading at this level for a number of months and classroom teaching was not having an effect on moving them forward. Questions were posed as to why this may be happening and what intervention did these students require at this point in time. Therefore, students were selected for this study based on this initial text level. They were placed into an Intervention or Control group depending on which class they were currently in (See Table 1). One class had a teacher who was experienced in delivering a phonological program and the other class had a teacher new to the junior area. As students were going to be withdrawn for teaching sessions it was deemed easier if participants came from the same classroom. The group chosen came from the class that does not have a clear phonological program in place at the moment.

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…	EMA No+0 Yes=1
A	1	91	1	3	0	0	1	1
B	1	89	1	3	0	0	1	1
C	1	92	0	3	0	0	1	0
AA	0	104	0	3	0	0	0	0
BB	0	92	0	3	1	0	0	1
CC	0	109	1	3	0	1	0	1

Table 1

Student A

Student A is 91 months and in her third year of schooling. She participated in the Reading Recovery program for approximately 20 weeks and discontinued successfully. She entered back into the class exactly a year ago having reached the minimum year 1 benchmark of level 15. After Reading Recovery, reading progress

has not regressed and she has been reading text level 20 for a few months now; however this is still below the majority of year 2 students in her current class.

Student B

Student B is 89 months and is in her third year of schooling. She is the youngest year 2 student in her class and in this study. She participated in the Reading Recovery program at the latter months of year 1 and was a carried over student at the beginning of this year. At the end of first term, student B discontinued successfully at text level 18 after 18 weeks on the program. She is currently on text level 20 after completing Reading Recovery 17 weeks prior.

Student C

Student C is 92 months and is in his third year of schooling. He participated in the Reading Recovery program at the latter months of year 1 and was a carried over student at the beginning of this year. At the end of first term, student C discontinued successfully at text level 17 after 18 weeks on the program. He is currently on text level 20 after completing Reading Recovery 17 weeks prior. The classroom teacher has observed a reduction in his confidence when reading since leaving the Reading Recovery program.

Student AA

Student AA is 104 months and is in his third year of schooling. He arrived at the current school 12 months ago. He was not eligible for the Reading Recovery program due to other needs in the school; however he has been monitored by the literacy leader as his results were just under the school's benchmark at the end of year 1. At the beginning of this year, student AA was reading text level 14 and is currently at text level 20. Whilst there has been improvement, monitoring progress needs to be continued.

Student BB

Student BB is 92 months and is in his third year of schooling. He has arrived at this school five months ago and has a language background other than English. Student BB's English learning was at an international school outside of Australia and he did not take part in any formal intervention at that school. He is currently reading

at text level 20. The classroom teacher feels that progress has been made but is currently lower than the majority of the class.

Student CC

Student CC is 109 months and is in her third year of schooling. She is the oldest student in her class and in this study. She receives LNSLN funding and has an integration aide with her a few hours a week. She was not eligible for Reading Recovery due to higher literacy needs at the beginning of each intake. She was reading text level 18 at the beginning of this year but has seemed to stop at text level 20.

Materials used.

Pre and Post assessment materials

In the pre and post assessment, students were assessed using a variety of tasks.

- Running Records of unseen text were taken. The texts were from the Alpha Assess levels 20 – 28. These levels are currently used within the school to determine instructional reading levels. Instructional levels are based on Marie Clay (2005) calculation and conversion table where instructional level means that the student is reading the text with an accuracy rate of 90% to 95%.
- Dalheim's Rime unit test (2004) was administered to each student on a one to one basis. This was to see what dependable rime units the students were able to access and whether they were able to use these rime units through the strategy of analogy to decode 4 or 5 letter words.
- A common text 'A Barbecue with Friends' from the Enhancing Reading Intervention Knowledge program (ERIK) revision ,session 25. This text was chosen as it had a Fry's readability (as cited in Munro 2011) of a grade 2 level. It included words that required students to use the strategy of analogy, as the text had multiple words with similar rime units. The common text was taken from the ERIK program as it was a known text that allows students to use this kind of strategy when reading.

Teaching session requirements

- Researcher prepared prose with the target rime words including one to two for each session along with additional copies for each student and for the researcher /teacher to record observations. (**see Appendix A)**
- Large and individual whiteboards and markers
- Textas
- Magnetic letters – at least one set for each participant
- A3 or bigger sheets of cards
- Computer access with researcher/ teacher devised PowerPoint program and/ or words from the prose written on strips or card and cut at the onset and rime for students to match.

The Procedure

After selection, all students within the study were involved in the pre and post assessments. This was administered individually and took around 30 to 40 minutes. Out of the six participants, three were chosen from the same class to be part of the Intervention / teaching group. This group of students were involved in ten explicit lessons. The lessons aimed to reflect the 'Model of Teaching and Learning' as devised by Collins, Brown and Newman (1989; cited in Munro 2011) where the teacher models, coaches, scaffolds and then fades this scaffold throughout each lesson and where the students are encouraged to articulate, reflect and explore their new learning.

The ten sessions were taken outside the classroom environment but each participant had worked with the researcher/teacher before and was familiar with the surroundings. Each teaching session went for about 30 minutes over a three week period. This was deemed necessary due to other classroom commitments of the participants involved.

The students' pre assessment data using the Dalheim rime test (2004) was analysed and common rime units were selected based on those rime units where the student knew at least one of the words. The partially known rimes groups were important for the students to be able to practice the strategy of analogy. It supports the theory that partial known information is within a reader's Zone of Proximal Development and is the best point of learning. Out of these results 14 common

rime units were selected. They were, **ad, est, ump, ank, ail, ide, ug & ap, ack & it, ick & ain, ice & oke.**

Outline of the series of lessons -

Each session contained a prose that focused on a rime unit. When lesson six was completed, the lessons changed and each prose contained two rime units. Each session, except for the first followed the same procedure

(See Appendix B)

- Reading of yesterday's prose whilst the teacher takes a running record.
- Whilst one student is reading the other students are watching a PowerPoint program that flashes up the onset and rime from the previous session and complete another task where they have to match the onset and rime from two pieces of card.
- The new prose is introduced via the title. Teacher reads and a discussion is held based on the meaning of the prose and the rime unit identified throughout. From session 7 onwards two rime units need to be identified within the prose.
- Students read the prose with the teacher again and reflect on the meaning of the story as well as highlighting the common rime unit words.
- Students' as a group devise a list of these words with the teacher support if needed.
- Students then use magnetic letters and whiteboard markers to make these words and identify others that have the same phonological and orthographic pattern and where the strategy of analogy works.
- New words are added to the list above
- Students articulate a self script - **' If I know ….. then I know…..'** a number of times in front of the group
- Students leave the session with the prose to read at home and identify a person e.g. Teacher, parent, classmate, teacher aid, literacy leader, principal etc, that they must tell the self script too. By doing this they articulate their new learning and thus demonstrating their understanding of the strategy of analogy.

The structure of the lessons remained the same however in the early lessons (lesson 1 – 2) the teacher does most of the modeling in finding the common rime unit, writing the list of words that share the same rime units, modeling the onset and rime with magnetic letters, adding to the list of words and scaffolding the self script. As the series of lessons progress the students take over the modeling of these tasks and the teacher supports if needed. This is important for the students to become self learners and to practice these skills and knowledge in an independent way.

Analysising the Data

Three different types of data were collected at the pre assessment that involved reading accuracy in prose and words in isolation. A running record identified an instructional level of reading by recording the reader's accuracy level as identified in the Marie Clay (2005) calculation and conversion chart. A common analogy based prose was used to record reading accuracy. The list of words known in Dalheim (2004) Rime unit test was recorded as a raw score and a percentage. These same tasks were administered again to the Intervention group after ten explicit teaching sessions and to the Control group five weeks after the pre assessment. Both groups are then compared to their pre and post results as well as which groups results reflected a greater gain and why.

Results

Results from the pre test and post assessment suggests that explicitly teaching at risk year 2 students the strategy of analogy through onset and rime does improve word reading accuracy in isolation and in prose. (**See Appendix C)** This conclusion comes from the gains made in comparison with the Intervention and Control group. Whilst all students within the five week study have shown an increase in scores, it is the data from the Intervention group which is the most pleasing. Results indicate that explicit teaching of this strategy contributed to the higher results for this group.
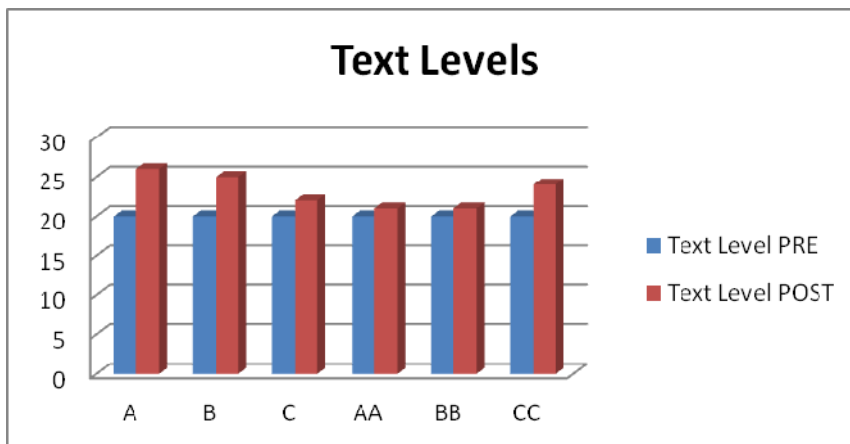
Text Level

Text Levels

Figure 1

All students were chosen based on reading instructional text level 20. Within the five week study it is interesting to see the improvement in text level for the Intervention group as compared to the Control group. Whilst there was an increase in instructional levels for all students (see Figure 1), it was student A (text level 20 to level 26) and B (text level 20 to level 25) that improved the most. Both students were in the Intervention group along with student C (text level 20 to level 22) who made the least gain out of the Intervention group. However whilst student AA and BB made only a one level gain, Student CC increased by three levels. This data alone does seem to support the hypothesis and may not be a direct result of students using the strategy of analogy to decode words.

Common Text accuracy

A common text, with a Fry's readability of year 2 was chosen for this study to see if students' recode using strategies such as analogy. The text included dependable rime unit words that can be recoded using this strategy. For example, Hong / Kong/ tongs/ song and Tess / less/ mess, are all included in the text. Whilst the text does not specify whether the student has used this strategy it is in the word reading accuracy that we can make predictions as to how successful they were.
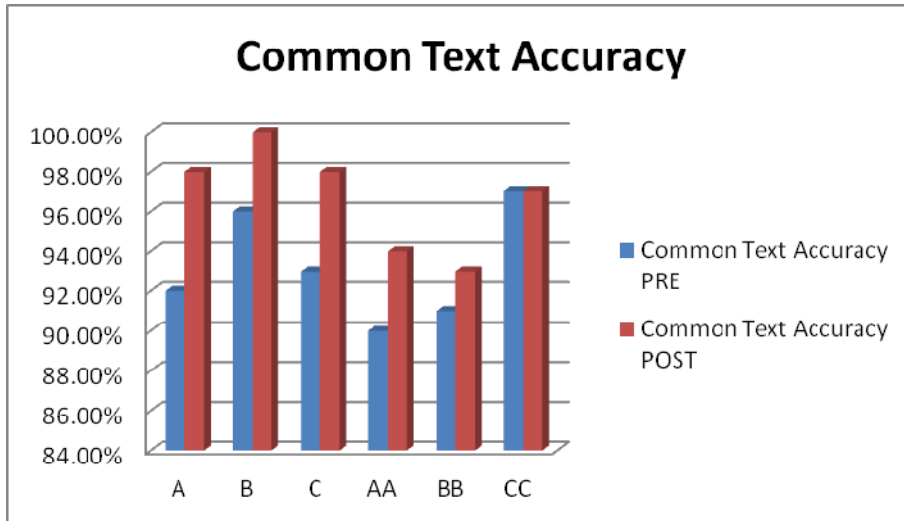
Common Text Accuracy

Figure 2

This chart shows the gains made by all the students in the study (see figure 2). All the students were able to read this text the first time (pre assessment) at an instruction level (based on Marie Clay's calculation and conversions chart) , that is easier or at 90% accuracy rate. Whilst student CC read at a higher level of accuracy (97%) in the pre assessment, these results did not change at the post assessment. It was the students in the Intervention groups (student A, B,C) whose accuracy rate made higher gains than the Control group (student AA,BB,CC) All students in the Intervention group had an accuracy rate at the post assessment that was within 98% to 100% which makes the reading of this text at an easy level. Students A and C read this text with 98% accuracy, while student B read with no errors and at a 100% accuracy rate. Obtaining these results required the student to use a strategy to decode words and could indicate that they needed to apply a strategy such as analogy to recode, as many words within the text had similar rime endings. It could be assumed that students use this strategy each time. However there may be unknown factors as to why results improved.

Rime Unit Test

The following assessment gauges how students decode words in isolation using the Dalheim Rime Unit Test (2004)
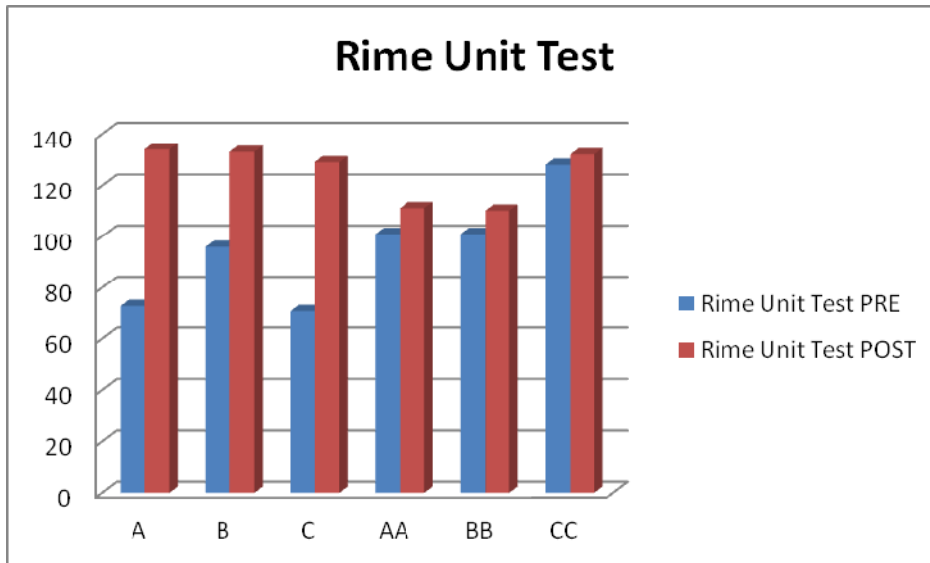
Figure 3

All students in this study increased their knowledge of the dependable rime units (see figure 3). Students A, B, C in the Intervention group scored lower in the pre assessment however they made the highest improvement, compared to students AA, BB, CC in the Control group. The Control group's data was higher in the pre assessment, in comparison to the Intervention group. This may be because the Control group is from a class which has a strong phonological program. It is interesting to note that the gains made in the Control group's post assessment are not higher than the Intervention group. The Intervention group's improvement could be a direct link to explicitly teaching onset and rime using a strategy such as analogy. The following table shows the increase in the raw scores for both groups and the percentage correct. (See Table 2)

Student	Pre - raw score	Pre -% correct	Post - raw score	Post-%correct	% Difference
A – intervention group	73 / 149	48% correct	134 / 149	89% correct	+ 41%
B- intervention group	96 / 149	64% correct	133 / 149	89% correct	+ 25%
C- intervention group	71 / 149	47% correct	129 / 149	86% correct	+39%

AA- control group	101/ 149	67% correct	111 / 149	74% correct	+ 7%
BB- control group	101 / 149	67% correct	110 / 149	73% correct	+ 6%
CC- control group	128 / 149	85% correct	132 / 149	88% correct	+ 3%

Table 2

The Intervention group has seen the highest increase in the percentage correct from the pre assessment to the post assessment. With Student A going from 48% and student B from 64%, both to 89% correct and student C from 47% to 86%. Student A increased by 41% which was the highest improvement seen overall. The improvement in the data of the Intervention group in comparison to the Control group is best highlighted when the average of each group is identified. (See Figure 4)
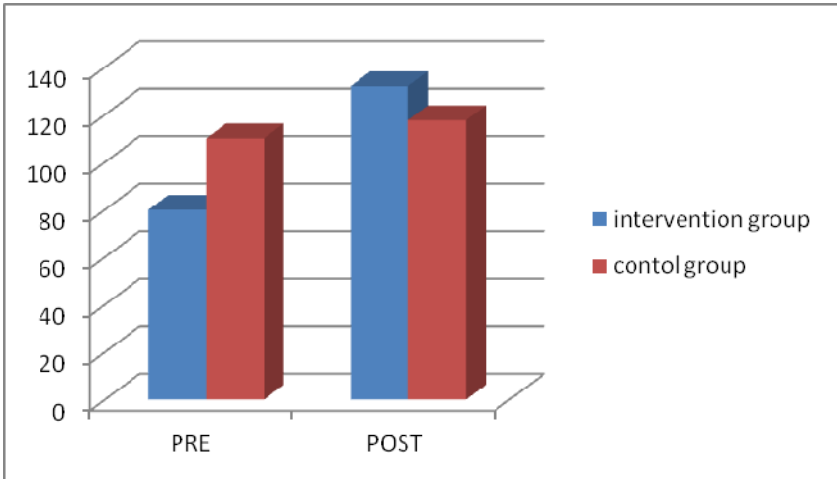

Figure 4

The average of the Intervention group has increased from the pre assessment score of 80 correct to the post assessment score of 132 correct, showing an improvement after the teaching sessions. The Control group average score of 110 at the pre assessment only increased to an average score of 117 at the post assessment. Whilst this group did not receive explicit instruction like the Intervention group, they did however receive instruction in the classroom.

All the data collected shows results have improved and supports the hypothesis; that explicitly teaching at risk year 2 students the strategy of analogy through onset and rime does improve word reading accuracy in isolation and in prose.

Individual Results

Student	Text Level PRE	Text Level POST	Rime Unit Test PRE	Rime Unit Test POST	Common Text Accuracy PRE	Common Text Accuracy POST
A	20	26	73	134	92.00%	98.00%
B	20	25	96	133	96.00%	100.00%
C	20	22	71	129	93.00%	98.00%
AA	20	21	101	111	90.00%	94.00%
BB	20	21	101	110	91.00%	93.00%
CC	21	24	128	132	97.00%	97.00%

Table 3

Table 2 shows data for individual students in all pre and post assessments. Individual data is discussed as following:

Student A: (Intervention Group) -Student A made the highest gains over the research period. This student in the five week period increased text levels by 6 levels, in comparison to five levels since leaving the Reading Recovery program a year ago. Increased the Rime unit test by 64 words and went from reading the common text at an instructional level 92% in the pre assessment to an easy level of reading accuracy 98% at the post assessment. During the teaching sessions, Student A was able to read the prose, articulate the common rime words seen in the prose, was able to make and break the onset and rime, suggest other words by using the strategy of analogy. Student A was able to articulate the analogy self script to the group and to others on all occasions.

Student B: (Intervention Group) - Student B made gains over the research period. This student in the five week period increased text levels by 5 levels. This is a bigger increase from level 18 to 20 in 17 weeks after completing Reading Recovery this year. She increased the Rime Unit Test by 37 words and went from a few errors and reading at 96% accuracy in the common text to no errors and reading at 100% accuracy. Throughout the teaching sessions, student B was able to read the prose, articulate the common rime words seen in the prose, was able to

make and break the onset and rime, suggest other words by using the strategy of analogy. Student B was able to articulate the analogy self script to the group and to others on all occasions.

Student C: (Intervention Group) - Student C made some gains over the research period. This student increased text level by 2 levels but made higher gains in the Rime Unit Test. Student C after explicit lessons in analogy using onset and rime increased the post assessment score by 58. In the common text, student C's reading accuracy went from an instructional level 93% to an easy level text accuracy of 98%. Throughout the teaching sessions, Student C was able to read the prose, articulate the common rime words seen in the prose, was able to make and break the onset and rime with assistance at times and sometimes suggested new words using the strategy of analogy. Student C was able to articulate the analogy self script to the group.

Student AA: (Control Group) - Student AA was only involved in the pre and post assessment over a five week period. Some small gains were made in text level by 1, rime unit test by 9 and prose reading accuracy of 94%. The prose reading accuracy still places student AA in the instructional reading level for this text.

Student BB: (Control Group) - Student BB made similar gains as student AA. Student BB was only involved in the pre and post assessment over the five week period. After this time student BB increased text level by 1, rime unit test by 10 words and was still in the instructional level of text accuracy after the post assessment at a 93% accuracy rate.

Student CC: (Control Group) -Student CC was only involved in the pre and post assessment over a five week period. Having the highest pre assessment data in text level, rime unit test and common reading prose accuracy, student CC still made some gains. Text level increased by 3 levels, rime test by 4 words and reading accuracy remained at 97% and at the easy level.

Discussion

The aim of this action research paper was to find out whether explicitly teaching at risk year 2 students the strategy of analogy through onset and rime improves word reading accuracy in isolation and in prose. All results at the post assessment do support this hypothesis. All students that participated in this research did indicate an increase in results but it was the Intervention group after explicit teaching that achieved higher results overall.

All students selected to participate in this study were at text level 20 and had not seemed to move. It was thought that a research project on assessing the strategy of analogy and its impact on reading accuracy should be tried. These students at level 20 were chosen as analogy is an important strategy that readers beyond level 15 should be able to use. As suggested by Munro, (2011) and Clay (2005) this strategy needs to be introduced at a later stage of reading development. It should be introduced once the reader is able to segment and blend words. In good classroom teaching it is suggested that the strategy of analogy be use when readers are good print technicians and are developing control over selecting processes to solve visual problems. Munro, (2011) believes that learning to read words is developmental and sequential and that learning the strategy of analogy should be part of learning to read.

Analogy works when readers are able to transfer knowledge from a known word to an unknown word. Savage, (1997) suggests that this requires the reader to have a sufficient mental lexicon on which to draw from. Without this they are limited in making this transference. Early readers often have a limited stored knowledge of known words. Glushko, (1991; cited in Moustafa 1995) suggests readers used stored words with phonological and orthographic properties when they use the strategy of analogy. They are able to activate this information when they see a new word that has the same properties. Munro, (1998) suggests readers who decode letter by letter or guess using distinct visual features may not be able to transfer their knowledge about words to recode others. All students within the research project displayed this form of recoding at some point in the pre assessment. However it was not evident in the Intervention group in the post assessment. It therefore makes sense that to use this strategy it must be taught to some students explicitly and cannot be taught without some connection to known words. This

research explicitly taught this strategy using dependable onset and rime units to the students in the Intervention group. Using dependable rime units and breaking into onset and rime to practice the strategy was based on Goswami, (1991) research which found that this strategy is easier to use when students use shared letter patterns as found in the dependable rimes.

Whilst the results for the Intervention group were pleasing and seemed to support the hypothesis it is important to look at other possible factors that may have impacted on these results as well. Results reflect that all students in the study went beyond text level 20. Results were favourable towards two students (A&B) in the Intervention group. Each student increased reading levels beyond 5 levels, within a five week period. Prior to this these students had been at this level for some time and observations showed that classroom teaching had not yet made an impact. The texts chosen for the pre and post assessments gauges reading levels for students, they are unseen and come from a range of both fiction and non- fiction text types. These texts are used in schools to find the reading level, the accuracy rate and the strategies used to decode. However in this study it does not explicitly show whether students are able to apply the strategy of analogy to unfamiliar words. The post assessment data on text level, may not directly link with the students skill of using the strategy of analogy and may in fact be because of their ability to segment and blend. Therefore it was important that a common text was chosen for this study to see if students decode using the strategies such as analogy.

The common text used matched the skill of applying strategies such as analogy, as common rime units are found in the text. Whilst the data was pleasing for the Intervention group where all students were reading the text at the post assessment at an easy level, the data does not take into account that it may have been easier for other reasons. One such reason could be that the students have seen the text before and this factor could conclude that they were not necessarily using the strategy of analogy only to gain such high results. This data may only show a possible link between the explicit teaching of analogy through onset and rime improves the word reading accuracy in prose. This data on its own does not support the hypothesis and additional data is therefore needed.

The Dalheim Rime Unit test (2004) seems to be a better indicator as to whether the students are able to apply the strategy of analogy. It appears in the results that the

Intervention group after receiving explicit lessons in this strategy did make the biggest improvement in comparison to the Control group. This is pleasing as while the Control group did not receive explicit instruction, they do however receive instruction in the classroom. The instruction in the classroom may be the reason why this group had higher pre assessment results in the rime unit test. The difference in the gains made by each group showed that the Intervention group increased their average by more. The scores of the Control group may reflect that the classroom instruction considers onset and rime possibly without the strategy of analogy. It is interesting to note that the Intervention group does not receive classroom instruction but in this study they received ten explicit lessons that taught the strategy of analogy through using onset and rime. The data therefore may be a direct link to the explicit nature of teaching analogy and proves the hypothesis correct. However it is important to examine the test for factors that may have an effect on the results gained. A reason why the Dalheim Rime Unit test (2004) should not be the only assessment of the strategy of analogy is because the assessment does not take into account the frequency of the words. The higher the frequency of a word the easier a reader can read it, as it is seen more regularly in text than lower frequency words. A student may in fact incorrectly read a three letter word in the rime unit test because it occurs less frequently. Therefore relying on one assessment alone does not validate the hypothesis but rather it is all three that must be taken into consideration.

 It highlights the need for schools to use multiple assessments before making judgments as to whether an explicit teaching program is successful or not. This is a future teaching consideration that must be acknowledged. It could be concluded that all three data assessments are required as they all impacted on the overall results. By examining all three assessments together there is enough evidence that the Intervention group improved through the explicit teaching of the strategy therefore supporting the hypothesis. Explicitly teaching at risk year 2 students the strategy of analogy through onset and rime improves word reading accuracy in isolation and in prose. The research demonstrates that the teaching of analogy through onset and rime does need to be part of an explicit teaching program in schools.

Bibliography

Chew, J.(1997). *Traditional phonics : what it is and what it is not. Journal of Research in Reading.* 20, 3, 171-183

Clay, M.M.(2005). *Literacy Lessons Designed for Individuals Part Two Teaching Procedures.* Heinemann Education. New Zealand.

Goswami, U.(1991). *Learning about Spelling Sequences : The Role of Onset and Rimes in Analogies in Reading.* Child Development, Inc. 1110-1123

Moustafa, M.(1995). *Children's productive phonological recoding.* Reading Research Quarterly. 30, 3, 464 – 476

Munro, J.(1998). *Phonological and phonemic awareness: Their impact on learning to read prose and to spell.* Australian Journal of Learning Disabilities. 3, 2, 15-21

Munro, J. (2011). *Literacy Intervention Strategies, 472697, Lecture notes. 2011.*Faculty of Education, University of Melbourne.

Savage, R.S.(1997). *Do Children Need Concurrent Prompts in Order to Use Lexical Analogies in Reading.* Cambridge University Press. 3, 2, 235-246

Resources

Alpha Assess levels 20 – 28 text. (The Girl and the Bucket - 20, Flying with the Wind - 21, The Laughing Dragon -22, Tigers and other Big Cats -23,Skydiving - 24, Dolphins to the Rescue -25, The Sun and the Moon -26, Hungry Crocodiles - 27, Surviving the Storm - 28)

Dalheim's Rime unit test (2004)

Text ' A Barbecue with Friends' from the Enhancing Reading Intervention Knowledge program (ERIK) revision session 25.

Appendix A

Bad Brad. **(ad)**

Brad was mad at dad. Dad had seen Brad draw all over the pad. This made dad very sad. Dad told Brad that he could not have the pad again. Brad was mad and ripped the pad. Dad sent Brad to his room. Dad was glad that mum could fix the pad.

The Best Nest. **(est)**

The birds were on a quest to build the best nest for their guest. They would not rest until they had passed the test. They worked for days and days on making the best nest. After lots of unrest they all became a pest so owl decided that they had all past the test. He said that every nest from the north to the west were the best!

It went bump in the night. **(ump)**

Tom woke up as he heard something go bump in the night. It made him jump and bump his head. As he rubbed the bump he felt a big lump. Tom was now in a grump and made a thump as he got out of bed to turn on the light. And what did he see that had gone bump…. It was his very plump cat - Stump!

Hank and Frank the Bank Robbers. **(ank)**

Hank and Frank were bank robbers. It was Hank's job to find a tank and Frank had to find the bank. As Hank yanked the crank that started the tank, he drove it to the bank. As it went up the plank at the side of the bank, Hank was very excited. But Frank had played a prank on Hank as the tank did not hit the bank. When Hank got out of the tank his heart

sank as he found that he had hit the shop next door. Hank looked blank - no thanks to Frank!

Sam the snail had a bad day. **(ail)**

Sam the snail was sliding along the fence rail on the way to get the mail, when all of a sudden he hit a nail and fall off into a pail. The nail hurt his little tail and Sam began to wail. He kept going but then it started to hail. Sam gave up going to get the mail and felt that he had failed. With a very sore tail, Sam followed the trail all the way home.

The Blushing Bride. **(ide)**

The bride was about to walk down the aisle but saw that it was not very wide. She had to decide what to do. So the bride began to walk down it side-ways. As she began to glide, she tripped and went for a slide. The bride could not hide that she had hurt her leg and her pride behind the tide of tears. She got up and ran out of the church.

Bug lost his Cap. **(ug & ap)**

Bug looked for his cap everywhere. He looked in his mug, under the flap of the rug, but it was not there. He dug under the trap and through a little gap he saw a slug having a nap and there was the cap all snug in his lap. Bug grabbed the cap and gave it a tug. The slug just shrugged and gave bug back his cap. Bug was so happy he gave it a big, big hug.

Jack and the Duck. **(ack & it)**

Jack found a backpack on the track. He picked it up but when he heard a quack he quickly put the sack back. In a little slit he saw a black duck.

He had to admit that if he hit it, it would attack and he didn't want to be bit by it. Jack just let it sit on the track and walked back.

<u>Rick saves the Train.</u>   **(ick & ain)**

Rick went to Spain by train. He didn't complain when it made him sick as the train flicked off the main chain because of the rain. The train driver tried in vain to click it back. In quick flick Rick remembered a trick and grabbed a thick stick. He used it like a brick and it gave the train a kick back on the main chain. Rick explained how he saved the train in the nick of time by using his brain.

<u>The Mice and the Smoke.</u>   **(ice & oke)**

The mice awoke to the smell of smoke. They ran to see where it was, as it had happened twice before. They saw a bloke having a smoke. The mice didn't think that it was very nice. So they spoke to each other while eating their rice and decided to play a joke on this nasty bloke. When the bloke was asleep the mice grabbed some hot spice. They found some slice and broke off a piece and poked the spice into it. When the bloke woke he saw the slice and ate it. It was so hot that the bloke ran away and the mice were happy again!

(appendix A)

Appendix B

Teaching session requirements

- Researcher prepared prose with the target rime words including one to two for each session along with additional copies for each student and for the teacher to record observations.
- Large and individual whiteboards and markers
- Textas
- Magnetic letters – at least one set for each participant
- A3 or bigger sheets of cards
- Computer access with teacher devised PowerPoint program and / or word strips cut at the onset and rime
- Each session is designed to run for 30 minutes.
- Each session contained a prose that focuses on a rime unit. When the students had been part of lesson six , the lesson changes and each prose contained two rime units. Each session, except for the first follows the same procedure
- The first session does not begin with reading the prose from the previous session or watching a PowerPoint program or onset and rime cards.

The following lessons are based on rime units, **ad, est, ump, ank, ail, ide, ug & ap, ack & it, ick & ain, ice & oke.**

Prose to be read in each lesson :

1. Bad Brad. (ad)
2. The best nest. (est)
3. It went bump in the night. (ump)
4. The bank robbers. (ank)
5. Sam the snail had a bad day. (ail)
6. The blushing Bride. (ide)
7. Bug lost his cap. (ug & ap)
8. Jack and the Duck. (ack & it)
9. Rick saves the train. (ick & ain)
10. The mice and the smoke. (ice & oke)

Appendix B: Lesson Plans 1 to 10

Activity name	Task Description	Teacher role	Student role
Revision of the previous lesson (except for lesson 1)	3 tasks / rotation – -Read to teacher. -Watch a PowerPoint that flashes yesterday's words. -find the onset and rime words using the cards.	Teacher takes a running record of yesterday's prose	Read to the teacher yesterday's prose, watch the PowerPoint and match the onset and rime words from pieces of card.
Reading of the new prose for the first time. (From session 7 onwards two rime units need to be identified within the prose.)	Teacher and students read the new prose and discuss the meaning of the prose and identify the common rime unit.	Teacher reads the prose and a discussion is held based on the meaning of the prose. The common rime units are identified with assistance if needed.	The student takes part in the discussion about the prose and identifies the common rime units.
Reading the prose the second time.	The group reads the prose together and identifies the common rime units. A list is made.	Teacher guides students as they read the prose as a group. Teacher assists students in finding the common rime unit words if needed. Teacher writes the list of words found by the students.(later the students do this)	Students read the prose with the teacher again and reflect on the meaning of the story as well as highlighting the common rime unit words. Students tell the group words found and list them.
Making the onset and rime words.	The group makes words using magnetic letters and whiteboard markers. They write the rime unit with markers and find the onset with magnetic letters.	Teacher assists students when necessary and describes what they are doing as the strategy of analogy.	Students use magnetic letters and whiteboard markers to make the words and identify others that have the same phonological and orthographic pattern. New words are added to the list

			above.
<u>Articulation</u>	The group articulates what they have learnt through a self script.	The teacher reviews what the students have done as the strategy of analogy and gives them the same script. (As time goes on the teacher follows the students' directions in this area.)	Students articulate a self script - **' If I know ….. then I know…..'** a number of times in front of the group using the words learnt today.
<u>Reflection</u> (By doing this they articulate their new learning and thus demonstrating their understanding of the strategy of analogy.)	The group leaves with the new knowledge and are to tell someone new.	The teacher asks the student to demonstrate to another person what they have learnt today.	Students leave the session with the day's prose to read at home and identify a person e.g. teacher, parent, classmate, teacher aid, literacy leader, principal etc, that they must tell the self script to.

(Appendix B)

Appendix C

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…	EMA No+0 Yes=1
A	1	91	1	3	0	0	1	1
B	1	89	1	3	0	0	1	1
C	1	92	0	3	0	0	1	0
AA	0	104	0	3	0	0	0	0
BB	0	92	0	3	1	0	0	1
CC	0	109	1	3	0	1	0	1

Attendance No. of sessions	Text Level PRE	Text Level POST	Rime Unit Test PRE	Rime Unit Test POST	Common Text Accuracy PRE	Common Text Accuracy POST
9	20	26	73	134	92.00%	98.00%
10	20	25	96	133	96.00%	100.00%
9	20	22	71	129	93.00%	98.00%
N/A	20	21	101	111	90.00%	94.00%
N/A	20	21	101	110	91.00%	93.00%
N/A	21	24	128	132	97.00%	97.00%

.