Abstract

The hypothesis to be investigated in this study is that the explicit teaching of onset and rime patterns in three letter CVC (consonant, vowel, consonant) words improves word and prose reading in beginning readers.

The method used involved introducing an onset-free rime made up of a single vowel and a single final consonant. The students were taught to recognise each letter separately then to blend it into a rime unit. For example *a* says /a/ and *t* says /t/ and the result is the unit *at*. The next step was to introduce the initial consonants individually in order to produce words such as *cat, rat, hat* and *mat.* To assist the students in remembering the components of the words, they were taught to recall mnemonic pictograms for each letter in the onset and rime unit. This corrected and reinforced letter formation and linked each letter to its corresponding sound.

Findings from this study showed improved reading of word and prose for both students. Both students were able to apply what had been taught to their reading. Both students achieved higher scores in all the components of the Clay Observation Survey and teacher prepared reading material. The classroom teachers of both students gave positive feedback regarding improved student performance in literacy tasks. Both students gained confidence in their reading, writing and spelling skills and were keen to share their knowledge from each session with their teachers and classmates.

The implications of these findings are that the teaching of onset and rime to beginning readers needs to be explicit. This study supports the research that states beginning readers find it easier to decode words when they are taught to segment them into onset and rime units. However this learning can not take place in isolation. Reading development is based on oral language and draws on listening and speaking skills. Beginning readers also use their writing and spelling skills to read words. Therefore all these components need to be part of a balanced reading program to ensure that all students' needs are met.

Introduction

Marie M. Clay (1991) defines reading as a message-getting, problem-solving activity which increases in power and flexibility the more it is practised. She describes it as not unlike the process of finding footholds when climbing up a cliff-face and notes that the achievement lies in the completion of the task. This view of reading reminds us that reading is a complex task and for each person it is a different experience. Our role as teachers is to provide the support needed to prepare each reader for the 'climb'. We need to know our students so that each 'climb' is a challenge rewarding enough to be undertaken with confidence again and again.

Oral language is the foundation for learning to read and phonological awareness enables the reader to analyse and manipulate language, especially at word and syllable level. Many beginning readers come to school with at least some phonological awareness in that they may be able to identify a word in a sentence. However, a more challenging task involves them being able to identify a syllable in a word.

Another aspect of oral language development is phonemic awareness. This is the awareness of the smaller units of speech sounds in words (phonemes). It is a knowledge of individual words and syllables as distinct units that can be analysed and manipulated. With phonemic awareness, readers are able to develop phonic knowledge because they are able to identify the individual sounds in syllables and words. Readers are able to map individual sounds to a letter or letters and then can map a letter or letters to their corresponding sounds.

Both phonological and phonemic awareness contribute to successful reading and writing by supporting the development of phonic knowledge. Phonic knowledge is the understanding of the patterns that occur in the English language. Phonic knowledge consists of two elements. One is knowledge of the relationship between letters and sounds and the other is the ability to combine the sounds represented by these letters into words.

Since the late 1960's, there has been a lot of research examining the role of phomene or speech sound awareness in beginning reading. Researchers (Liberman, Shankweiler, Fisher, & Carter, 1974) proposed that phoneme awareness, or the conscious attention to individual sounds, in words might be a critical factor in learning to read. Liberman argued that until beginning readers can segment spoken words into phomenes, they will be unable to match letters in printed words to their corresponding sounds.

Research has also shown that it is harder for the beginning reader to sound out a word letter by letter. This makes sense because the reader is working with and trying to manipulate the smallest sound unit in a word. It is more efficient and easier, when the reader is aware of the onset and rime patterns that make up words. Ehri and Robbins state, "Reading CVC words by analogy requires readers to segment and blend only two constituents, the onset of the new word with the rime of the known word, whereas reading words phonemically requires segmenting and blending three phonemic units. Research by Treiman (1985) has shown that onset rime units are more easily distinguished by children than phonemic units." (1992, p.15) This view is also supported by Jo Anne Vacca, Richard Vacca and Mary Gove (1995), 'Phonics instruction needs to include the teaching of onset and rimes. Instead of teaching phonics rules, teach children to use onset and rimes.. We can safely conclude that phonics information is much easier for young readers to acquire where phonograms are taught than when a one-on-one blending process is taught. (p 287)

Ehri (1998) has provided the most comprehensive description of how word knowledge develops in the beginning reader and has proposed four phases of word recognition development. The first phase is the *pre-alphabetic* phase in which children learn to read words by remembering and linking salient visual clues in the word with the word's pronunciation and meaning. For example, the child might see the tail end of *big* and the two posts at the end of *call.* However, as there is no systematic letter-sound processing at this stage, the child may confuse words that look similar. The next phase is the *partial alphabetic* phase and here the reader commits printed words to memory by forming connections between one or more letters in a word and the corresponding sound (s) detected in the word's pronunciation. This is evident when a child might remember the word *back* by connecting the initial and final letters with the corresponding sounds in the spoken word. At this phase, the child is able to make links between some letters and sounds and can segment either the initial or the initial and final sounds in words. With a reliable though restricted system of letter-sound relationships, the reader is able to process new words and store them in memory instead of just trying to remember words via idiosyncratic visual cues. As readers gains greater phoneme awareness, they eventually progress to a *full alphabetic* phase where they remember how to read words by forming complete connections between letters seen in the written word and phonemes heard in its pronunciation. Ehri's final phase is the *consolidated alphabetic phase* in which the beginning reader is able to notice the multiletter sequences that are common to the many words they have stored in memory. For example, the -*ock* sequence in *rock, block, sock* etc.)

Skilled readers, according to Adams (1990), are able to process individual letters with ease and speed due to the fact that they have learnt a lot about the sequence of letters they are likely to see at an automatic level. With this in mind, a goal for the present investigation is to assist beginning readers to recognise multiletter sequences namely *at* and *an* in their reading of three letter words. Another goal is to assist them in identifying word units in their reading and locating visual patterns in text, Clay (1972, 1991).

Honig (1996) proposes that almost all reading experts maintain that children need explicit instruction in phonemic awareness, decoding, print awareness , word attack skills, and language structure, including phrasing, syllabic, word root, and spelling patterns, all with sufficient repetition and reinforcement so that they can learn to recognize large numbers of words automatically and decode new words efficiently. Only then will children be able to read fluently and thus be able to concentrate on meaning.

Morris, Bloodgood, Lomax and Penny (2003) have outlined a developmental sequence of early reading acquisition as shown in the following table.

Kindergarten	1. Alphabet knowledge 2. Beginning consonant awareness 3. Concept of word in text 4. Spelling with beginning and ending consonants 5. Phonemic segmentation
First Grade	6. Word recognition 7. Contextual reading ability

TABLE 1 : DEVELOPMENTAL SEQUENCE OF EARLY READING ACQUISITION

With a combination of skilled instruction and guided practice in reading and writing text, it would be expected that most children develop the prerequisite reading skills in their early years of primary school. However for those children who do not make progress, there are at least two options open to teachers. The first might be to intensify the developmental instruction to small groups three or four times a week. Another option is that the teacher take a more explicit approach to teaching alphabet knowledge and phoneme awareness by using a program such as Letterland (1987), in which pictograms are used to teach sound and symbol correspondence. With either option, careful systematic teaching needs to occur along with adequate review of the concepts taught.

The present investigation will provide a series of sessions targeting beginning readers in Grade one with explicit teaching of onset and rime in three letter CVC words. My prediction is that teaching beginning readers to segment and blend words into onset and rime units will improve their reading ability.

Method

Design:

The study uses a case study OXO design in which the ability to read CVC words in isolation and in prose following explicit teaching of pictogram mnemonics and verbalised tracing actions for specific rime and onset units is monitored for beginning readers.

Participants:

The participants are two Grade 1 students. Both students are from non-English speaking backgrounds but speak English fluently. They were selected for this study because they lacked confidence in their reading skills. They both have difficulty reading at word level often guessing words by initial sounds. According to Ehri's four phases of word development, both students are at the partial alphabetic phase. As the following table shows they have some knowledge of letters and sounds.   Pre test results show that both students need help with word level strategies. Their ages and results from tasks in the Clay Observation Survey are shown in the following table.

	Age (JAN 03)	Letter ID (0 - 54)	CAP (0 - 24)	Word Test (0 - n)	Write. Vocab. (0 - n)	Dictat. Task. (0 - 37)
Student A	6 yr 0	35	15	2	3	5
Student B	6 yr 6	8	8	0	0	3

TABLE 2 : Student data and scores : Clay Observation Survey

Materials:

Materials used included the following:

- Observation Survey Tasks : five tasks were used: Letter Identification, Concepts about Print (using the *Sand* text), 'Ready to Read' Word Test (List A), Writing Observation Record Sheet and Hearing and Recording Sounds in Words (Dictation Task: Form A)
- Teacher made Prose and Word Reading Test
- Teacher made flashcards of whole words
- Teacher made flashcards of words segmented into onset and rime units
- Teacher made sentence strips of prose

Procedure:

The Pre and Post testing tasks were administered to each student individually. The other tasks were presented to both students during the remaining sessions. The sessions were conducted daily during the morning teaching block. Each session lasted approximately twenty minutes.

The students were encouraged to learn and practise specific tracing actions in order to remember the letter shapes taught. Each student was given the opportunity to verbalise the starting point and direction of the letter shape. The letter shape was then drawn and features were added to it in order to produce a mnemonic pictogram, for example, *a* became *appleman.* Both students were encouraged to use the action and visual imagery associated with the letter and its corresponding sound.

Results

Observation of the students

Both students were able to verbalise their tracing actions for letters taught and transferred this knowledge to their writing of letters and words. During some sessions, Student A self corrected his tracing actions and this helped him form the letter correctly and recall its corresponding sound. Student B often traced the word in the air or on a table surface before reading it aloud. He also required more support in the reading tasks. Student A became quicker at recognising the words automatically. Both students found segmenting then blending sounds into word units difficult.
 One of the students was able to read most of the text fluently in the post test session whilst the other used some tracing actions before reading some words.

	Age (JAN 03)	Letter ID (0 - 54)	CAP (0 - 24)	Word Test (0 - n)	Write. Vocab. (0 - n)	Dictat. Task. (0 - 37)
Student A	6 yr 0	35 **44**	15 **16**	2 **4**	3 **10**	5 **10**
Student B	6 yr 6	8 **19**	8 **10**	0 **2**	0 **3**	3 **4**

Table 3: Pre and Post Testing Results : Clay Observation Survey (Pre-test Raw Scores are displayed first in each cell, followed by Post test raw scores in bold)

Results in Table 2 show improvement in all areas for both students. As a result of explicit teaching of letters, sounds and rime units, both students have higher scores in all tasks. Student A wrote ten words in the Written Vocabulary task after the sessions. His pre test score was three words. Most of the words written contained the rime units taught. Student B wrote three words during the Written Vocabulary task, a marked improvement when noted that his initial score was zero. Explicit praise was given to both students reminding them that they can now write some words automatically.

When using the data in Clay's An Observation Survey (282 urban children aged 6 : 0 - 7: 3 in 1978) the improved raw scores achieved by both students in most tasks often placed them in the next Stanine group. In the Letter Identification task, Student A moved from Stanine group three to four whilst Student B moved from Stanine group one to two. When looking at the Concepts About Print task whilst student A remained in Stanine group four, Student B moved from Stanine group one to two. In the Word Test, Student A remains in Stanine group two whilst Student B moved from Stanine group one to two. Although both students remain in Stanine group one in the Written Vocabulary tasks, both have higher raw scores for this task. For the Dictation task, Student A moved from Stanine group two to three whilst Student B moved from Stanine Group one to two.

	AT Prose / words	AN Prose / words
Student A	10 **22**	15 **21**
Student B	14 **23**	15 **17**

Table 4 : Pre and Post Testing Results : Running Records (Number of words read correctly)

In Table 3, when reading a piece of text consisting of 23 words (AT Prose / words) , Student A was only able to read 10 words in the pre-test session. However, in the post test session he read 22 words correctly. Using the same text, Student B was able to read 14 words correctly in the pre-test session and then read it all without any errors in the post test session. When reading the other text (AN Prose / words), Student A was only able to read 15 words in the pre-test session. However, in the post test session he read 21 words correctly. Using the same text, Student B was able to read 15 words in the pre-test session and 17 words in the post test session.

Discussion

The findings in this study support the role of explicit teaching of onset and rime units to beginning readers in order to improve reading ability. The participants in this study both gained some knowledge of onset and rime units as a result of the explicit teaching and review of concepts that made up their sessions. The data shows that whilst the sessions can be systematic and structured, individual children will progress at different learning rates and achieve different results. The implications for teaching practice are to cater to individual needs and balance careful systematic teaching with adequate review of concepts taught.

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Appendix

Teaching Unit:

Learning Outcomes

At word level:

- To be able to segment the initial sound from the rest of the word
- To be able to segment words into single sounds
- To segment words into onset and rime units
- To stretch words out to isolate the sounds and letter clusters that make up words
- To blend a sequence of sounds to make words
- To teach letter and letter cluster sound links

Sessions 1/2: Pre-Testing/ Observation

The first two sessions were used for pre-testing and observation purposes.

In session 1, each student completed tasks from the Clay Observation Survey:

- Letter Identification
- Concepts About Print
- Word Test
- Writing Vocabulary
- Hearing and Recording Sounds in Words (Dictation Task)

In session 2, each child read simple repetitive sentences and words in this format:

I see a cat.
I see a rat.
I see a hat.
I see a mat.
I see a
cat
rat
hat
mat

Running records were taken during this session.

Sessions 3, 4, 5, 6,7 : Instruction, Training and Observation

In session 3, the students were given instruction in reading individual letters and the rime unit *at.*

1. Trace action for letter *a,* with verbalisation of letter formation.
2. Introduce pictogram mnemonic for *a* : apple man. Link sound to pictogram.
3. Trace action for letter *t,* with verbalisation of letter formation.
4. Introduce pictogram mnemonic for *t* : tree. Link sound to pictogram.

5. Blend sounds, *a* and *t...at.*
6. Write and read word *at.*

In session 4, the students revised knowledge from previous session, then were taught the onset unit *c.*

1. Trace action for letter c, with verbalisation of letter formation.
2. Introduce pictogram mnemonic for *c* : cat. Link sound to pictogram.
3. Blend onset and rime...c ..at ...cat.
4. Write and read word *cat.*

In session 5, the students revised knowledge from previous session, then were taught the onset unit *r.*

1. Trace action for letter r, with verbalisation of letter formation.
2. Introduce pictogram mnemonic for *r :* rooster. Link sound to pictogram.
3. Blend onset and rime ...r...at..rat.
4. Write and read word *rat.*

In session 6, the students revised knowledge from previous session, then were taught the onset unit *h.*

1. Trace action for letter *h,* with verbalisation of letter formation.
2. Introduce pictogram mnemonic for *h* : horse. Link sound to pictogram.
3. Blend onset and rime...h..at..hat.
4. Write and read the word *hat.*

In session 7, the students revised knowledge from previous session, then were taught the onset unit *m.*

1. Trace action for letter *m*, with verbalisation of letter formation.
2. Introduce pictogram mnemonic for *m* : mountain. Link sound to pictogram.
3. Blend onset and rime...m..at..mat.
4. Write and read the word m*at.*

Session 8 Revision and Testing: AT words

1. Onset and rime Concentration game. Cards from set A and set B were placed faced down on table. Students took turns turning over a pair of cards and read words created: cat, rat, mat and hat.

SET A Cards

c	h
m	r

SET B Cards

at	at
at	at

2. Modelled writing of sentence beginning: I see a .... Teacher scribed onto sentence strip.

3. Students placed flashcards at end of sentence strip to create four sentences.
4. Students read sentences and words. Teacher took running records.

Session 9

I see a can.
I see a man.
I see a fan.
I see a pan.
I see a
can
man
fan
pan

Running records were taken during this session.

Sessions 10, 11,12,13, 14: Instruction, Training and Observation

In session 10, the students were given instruction in reading individual letters and the rime unit *an.*

1. Trace action for letter *a,* with verbalisation of letter formation.
2. Introduce pictogram mnemonic for *a* : apple man. Link sound to pictogram.
3. Trace action for letter *n,* with verbalisation of letter formation.
4. Introduce pictogram mnemonic for n : nest. Link sound to pictogram.
5. Blend sounds, *a* and n...*an.*
6. Write and read word *an.*

In session 11, the students revised knowledge from previous session, then were taught the onset unit *c.*

1. Trace action for letter c, with verbalisation of letter formation.
2. Introduce pictogram mnemonic for *c* : cat. Link sound to pictogram.
3. Blend onset and rime...c ..an ...can.
4. Write and read word *can.*

In session 12, the students revised knowledge from previous session, then were taught the onset unit *m.*

1. Trace action for letter m, with verbalisation of letter formation.
2. Introduce pictogram mnemonic for m *:* mountain. Link sound to pictogram.
3. Blend onset and rime ...m...an..man.
4. Write and read word *man.*

In session 13, the students revised knowledge from previous session, then were taught the onset unit *f* .

1. Trace action for letter *f,* with verbalisation of letter formation.
2. Introduce pictogram mnemonic for *f* : flower. Link sound to pictogram.
3. Blend onset and rime...f..an ...fan .
4. Write and read the word *hat.*

In session 14, the students revised knowledge from previous session, then were taught the onset unit *p*.

1. Trace action for letter *p*, with verbalisation of letter formation.
2. Introduce pictogram mnemonic for p : puppy Link sound to pictogram.
3. Blend onset and rime...p. an..pan.
4. *Write and read the word pan.*

Session 16 Revision and Post-testing: AN words

1. Onset and rime Concentration game. Cards from set A and set B were placed faced down on table. Students took turns turning over a pair of cards and read words created: can, man, pan and fan.

SET A Cards

c	p
m	f

SET B Cards

an	an
an	an

2. Modelled writing of sentence beginning: I see a .... Teacher scribed onto sentence strip.
3. Students placed flashcards at end of sentence strip to create four sentences.
4. Students read sentences and words. Teacher took running records.

Sessions 17: Post -Testing/ Observation

The last two sessions of this unit were used for post-testing and observation purposes.

In session 17, each student completed tasks from the Clay Observation Survey:

- Letter Identification
- Concepts About Print
- Word Test
- Writing Vocabulary
- Hearing and Recording Sounds in Words (Dictation Task)