

Explicit teaching of visualization strategies to Year 3 and 4 students improves their comprehension

Abstract:

Comprehension is an important part of reading, yet many students experience difficulties in this area and do not recognize that they need to engage with the text at more than the word level. In the middle years of primary schooling, these students are often more noticeable as more standardized tests are used and difficulties are reflected. In order to improve active involvement with the text, resulting in enhanced comprehension skills, visualization strategies such as R.I.D.E.R. have been successfully used by many researchers.

This study examines the explicit teaching of visualization strategies to eight students in a multi-age Year 3 and 4 class and the impact of this instruction on their comprehension. There were three girls and five boys in the study, all from a background in which English is the second language. These students were identified as having low comprehension, despite having success with their word recognition skills. Pre testing was administered to establish word reading ability, visualization skills, comprehension and the level of their self efficacy.

In this research, The R.I.D.E.R. visualization strategy was explicitly taught to these students, with an emphasis on the stages of describing the image and evaluating it against the text, as the pre test data presented evidence of a need in these areas. Post test results indicate that these students improved in their use of visualization and there was a positive trend in their comprehension scores, although the control group also made gains in their comprehension scores. The study indicates that the visualization strategy used is effective in involving readers with the text, although the participants require on going support to use the strategy independently.

Introduction

At the middle primary level, many students experience difficulty with their comprehension skills, despite having achieved a level of competency with their word recognition skills. It seems that for many of these students, reading is a matter of getting through the words, rather than engaging with the text. However, in order to be a proficient reader, students need to be able to get meaning from print as well as focus on the decoding of words (Center, et al, 1999). When readers do not expect the text to make sense, their role is a passive one and they have comprehension difficulties (Walker, 2005, Manning, 2002). Ketch (2005) noted that the process of interaction between the text and the reader facilitates comprehension or message-getting, indicating that this is important in terms of reading instruction. Research shows that students need to be active participants in the process of reading and make connections to the text and to wider experiences (Pearson et al, cited in Ketch, 2005). Where students do not naturally engage with the text and monitor their own comprehension, they need explicit instruction to equip them with the necessary skills. Although it is widely acknowledged that comprehension is important, studies have found that instruction in this area is given little time in many classrooms (Kelly, 2000, Pressley, et al 1998, Taylor et al, 2000 cited in Pressley et al, 2006).

Research has been undertaken to determine the effectiveness of explicit instruction in comprehension strategies (Duke & Pressley, 1999, Brown et al, 1996 cited in Brownall, 2000). Some researchers describe the act of comprehension as so sophisticated that no single instructional method can be sufficient for all readers, in all circumstances and with all written materials (Snow et al, 1998 cited in Barton & Sawyer 2003). When asked what classroom teachers can do to improve the

comprehension abilities of their students, Pressley (2000) suggested that students need help to recognize the value of specific comprehension strategies. He added that educators needed to model how to use the strategies, provide opportunities and support for students to use them and encourage students to evaluate their strategy use.

Some research has explored the types of explicit instruction that may impact on comprehension skills. Many researchers have explored the use of mental imagery, an intervention strategy in which students are instructed to make mental pictures or movies about what they are reading. Having students create visual images to enhance comprehension has been the focus of many studies (Douville, 1999; Gambrell & Bales, 1986; Peters & Levin, 1986; Williams, Konopak, Wood, & Avett, 1992, cited in Wood & Endres, 2004). This strategy can assist the reader to make connections with the text (Gambrell & Jawitz, 1993, Sadoski, 1983, cited in Ketch, 2005). Fairlie (2004) stresses the importance of the image to understanding, with readers creating their images from their experiences. She suggests that without visual imagery, reading can become a sterile puzzle and questions how readers can connect to a text and construct meaning without the ability to visualize. Barclay (2006) cites a quote from Albert Einstein- "If I can't picture it, I can't understand it." Kelly (2000) also states that teaching visual imagery is an effective tool for assisting students with comprehension, depending on how this instruction is delivered to students. However, some studies (Chan, Cole and Morris, 1990; Clark, Deshler, Schumaker, Alley & Warner, 1984 cited in Kelly, 2000) have shown that self-questioning and verbal rehearsal can be more effective than visual imagery instruction. In exploring research in this area, Kelly concluded that provision of verbal feedback following attempts to visualize and teaching students to self-monitor their comprehension keeps them

engaged in the task and makes visualizing more successful. Duke and Pressley (1999) support the idea that students need to self monitor as they read and reflect on the images they make from the text.

The R.I.D.E.R strategy (Clark et al, 1984) encourages verbal feedback and self monitoring and has been successfully used to teach students to visualize. Following the procedure listed below, students are taught to create visual images that match the content of the text:

READ: Read the sentence.

IMAGE: Try to make a picture in your mind about the sentence.

DESCRIBE: Describe your image.

EVALUATE: Evaluate your image to see if it matches the text.

REPEAT: Read the next sentence and repeat the above steps.

Munro (2005) also suggests that this strategy may assist readers to understand what they read.

Manning (2002) describes some factors that hinder the development of visualizing skills. She indicates that readers need sufficient background knowledge to create their images. When dealing with topics outside their experience or knowledge base, readers may have more difficulties with their comprehension (Stott, 2001). The more background information that the reader can connect to the text, the more likely it is that that text will make sense (Butcher & Kintsch, 2003; Scallert & Martin, 2003 cited in Pardo, 2004). Readers also need to be able to read the text with sufficient phrasing and attention to punctuation to retain the image. They need to be actively involved

with the text and discussions before, during and after reading help them to make a personal connection. Additionally, Manning (2002) suggests that drawing and dramatizing can help to engage the readers. Barton & Sawyer (2003) support the notion that talking, writing and drawing assist readers to reflect and engage with the text. This study seeks to consider these points in relation to the ESL participants.

The present investigation aims to explore the effectiveness of explicit instruction in visualizing strategies in improving the comprehension of students in Years 3 and 4. The participants are all from backgrounds in which English is their second language and their experiences influence the selection of material used for the intervention. As Manning suggests, in order to ensure that they can visualize the texts, they will need to be able to read them with appropriate phrasing and not be hindered by decoding difficulties. Consequently, texts used will be matched to their reading ability.

Currently, these students are described by their teacher as passive participants in the reading process, so strategies such as R.I.D.E.R and drawing will be used to engage them and assist them to connect with the text.

It is predicted that the participants in this study will become more actively involved in the process of comprehension through explicit training in the visualization strategy.

As a result of this increased involvement with the text, comprehension skills will improve.

Method

Design:

The study uses a case study OXO design. Gains in the ability to visualize and use this to improve reading comprehension are monitored for students in Years 3 and 4. The study compares two groups of eight students. One group is provided with explicit instruction in visualizing strategies, while the other group serves as a control group.

Participants:

All 16 students in this study are in multi-age Year 3 / 4 class groupings in a large primary school in Melbourne's outer eastern suburbs. All of the students are from an English as a Second Language background. Two students (G and K) have received New Arrival assistance in previous years, arriving in Australia in 2004. Students B, L and P received Reading Recovery Intervention. Students in the intervention group are all in the same class and the control group students are in another class at the same school. Their ages range from 7-9 years. In each of the groups, three students are female and five are male. Students were chosen based on their scores on the Torch Comprehension Test, which was initially administered within the classroom at the beginning of this school year. These students scored the lowest comprehension scores in their classes, although their teachers identified them as being able to accurately decode when reading. All class teachers in this level were focusing on the development of comprehension skills during the study. The intervention and control groups were matched according to their Torch Comprehension Scores after this was readministered at the beginning of the study.

Table 1 shows their ages in months, ESL background, and pre test scores for BURT Word Reading, Torch Comprehension, Visualization and Self-Efficacy.

Table 1: Student Pre test Data

Intervention Group

Student	M / F	Age in months	NESB	Pretest					
				BURT		TORCH		Visualizing Task	Self Efficacy Task
				Raw	Age Equiv in months	Torch Scale Score	Percentile		
A	F	95	Sri Lanka	70	132	29.2	32	12	56
B	F	100	India	53	107	27.4	27	16	36
C	F	99	Samoa	80	150	36.4	55	2	51
D	M	106	Philippines	76	142	23.4	17	5	37
E	M	84	Samoa	65	125	25.5	22	17	40
F	M	100	Philippines	93	150	27.4	27	3	42
G	M	102	India	86	150	38.2	60	2	34
H	M	100	Indonesia	70	132	27.4	27	9	26
<i>AVERAGE</i>		98.25		74.12	136	29.36	33.37	8.25	40.25

Control Group

Student	M / F	Age in months	NESB	Pretest					
				BURT		TORCH		Visualizing Task	Self Efficacy Task
				Raw	Age Equiv in months	Torch Scale Score	Percentile		
I	F	103	India	50	103	25.5	22	24	47
J	M	110	Sri Lanka	68	129	27.4	27	18	41
K	F	102	India	41	94	23.4	17	22	31
L	M	97	India	45	98	25.5	22	13	21
M	M	108	India	45	98	27.4	27	11	30
N	M	108	Mauritius	85	150	38.2	60	14	39
O	M	101	Philippines	81	150	29.2	32	0	41
P	F	113	Sri Lanka	81	150	31	38	13	43
<i>AVERAGE</i>		105.25		62	121.5	28.45	30.62	14.38	36.63

Materials:

Materials used include the following:

- Reading tasks: Word recognition skills were assessed using the Burt Word Reading Test (Gilmore, Croft, Reid, 1981). Comprehension skills were assessed with the TORCH Tests of Reading Comprehension Second Edition. A different Torch test was used at the start and end of the study.
- Visualizing task: The ability to make mind pictures was assessed using an adaptation of the Visualization Task (Munro, 2005). The task was administered individually and oral responses were recorded at both the pretest and post test.
- Self Efficacy tasks: The Self Efficacy Survey (Munro, 2005) was used to assess how the students felt about themselves as learners. As many were reluctant to independently practice their reading, the study used this survey to measure change in their self efficacy. Individual journal reflections were also recorded throughout the intervention program.
- R.I.D.E.R bookmark (see Appendix 3)
- Reading texts: Three different texts were selected. The Fry’s Readability procedure was used to determine the appropriate level of these fiction texts.

Table 2 shows the readability levels of these texts:

Table 2

Text Name	Author	Type of text	Fry Readability Level		
			Sentences	Syllables	Year Level
Captain Barney and the House On Fire	Ian Craven	Fiction	11	129	3
Please Stop Barking	Pat Collins	Fiction	11	130	3
Rosie’s House	Susan Reid	Fiction	11	124	3

The above texts were used to introduce the concept of visualization with the teacher initially reading individual sentences. All texts were comfortably within the reading range of the study participants, so that the students could read with enough phrasing to retain the image. The texts were also selected because they evoked visual images in the reader and dealt with topics that were familiar to them.

Procedure:

The assessment tasks were administered to all students in the following order:

- a) Burt Word Reading Test
- b) Torch Test of Reading Comprehension
- c) Visualization Task
- d) Self-Efficacy Survey

The Burt Word Reading Test was used to determine the word recognition skills of the participants and to provide an estimate of their reading achievement. The Torch test was the main measurement tool for comprehension skills. In order to evaluate the effectiveness of the visualization instruction, the Visualization Task was administered individually to the students, with the responses recorded for them. This reduced the potential for these students to achieve low scores because they did not want to write for themselves. As many of the students were also reluctant writers, this was considered an important adaptation for them. The study collected data on self efficacy in order to measure if an increase in this area would stimulate self monitoring and contribute to the development of comprehension skills.

Prior to the commencement of the intervention, the lesson plan was trialed on an independent group of four Year 3 students to fine tune the instruction process and evaluate the effectiveness of the materials. At the conclusion of this trial, it was decided to use sentence strips to introduce the strategy and to use drawings to prompt

these ESL students with their image description. It was also decided to use a Dictaphone to stimulate interest in describing student images in a small group.

The intervention sessions were conducted within the regular classroom and formed part of the normal two hour literacy sessions. The classroom teacher worked with the whole class at the start of the reading session, then formed small groups for specific skills training. Students were in the habit of rejoining the whole class to share their learning at the conclusion of the lessons. Members of the intervention group were encouraged to participate in this whole class reflection time. Throughout the study, the focus of the intervention was displayed on a sentence strip in the classroom. The intervention formed part of the small group time, lasting 30-40 minutes each session. In this study, the researcher conducted the intervention sessions, working with the classroom teacher in the room. The intervention was administered over a three week period and involved ten sessions. Lessons were audio taped in an attempt to monitor the discussions and reflections of the students. Students were given a book to record some of their reflections about their learning and to use for drawing their pictures.

The sessions followed a similar format, based on the following:

1. Introduction/revision of the strategy: Specific instruction on using the strategy.
2. Teacher and group modeling of the strategy: Teacher models strategy initially, then students discuss next example as a group, evaluating pictures made against the text.
3. Individual practice of the strategy: Individuals draw and describe their own pictures.
4. Student reflection on their learning: Students describe what they have learnt and what they are going to try.

The sessions used small amounts of text, initially on cards, to introduce students to the strategy (see Appendix 1). In the first session, students were asked to draw what they saw in their minds when they read a single word such as 'house'. They were then asked to describe what they had drawn and a discussion ensued about the differences in the pictures, after teacher modeling of how to describe the image she created. The same word was then used in the context of a sentence- 'Everyone in the house was asleep' and pictures were again drawn and described. The group was encouraged to discuss the difference in their pictures between the first and second drawings. All had drawn the outside of a house in their first picture, but in their minds, they went inside the house and drew the bedrooms in the second picture. The importance of other words in the sentence was discussed to draw student attention to the need to check the text. Initially, participants were inclined to describe their images in terms of predictions, many of which went off track. The checking, or evaluating of their pictures became a focus in the following sessions. Participants reflected on their learning at the end of each session and sometimes recorded them. Samples of these reflections are included (see Appendix 2).

At the conclusion of the sessions, the assessments used in the pretest were readministered. The raw scores were used for the Burt test. These were used to determine the mean age in months from the table of Equivalent Age Bands. In the Torch tests, the raw score was related to the corresponding Torch scale score. The Visualization Task was scored on the following scale, with a maximum score of 32.

0 = did not describe an image that matched the sentence 1= described an image that partially matched the sentence 2= described an image that matched the sentence.
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Similarly, the Self Efficacy Task was scored according to the following scale, with a maximum score of 48 for the first section and 6 for the second section.

0= I know I can't
1=I think I can't
2= I'm half and half sure
3=I think I can
4=I know I can

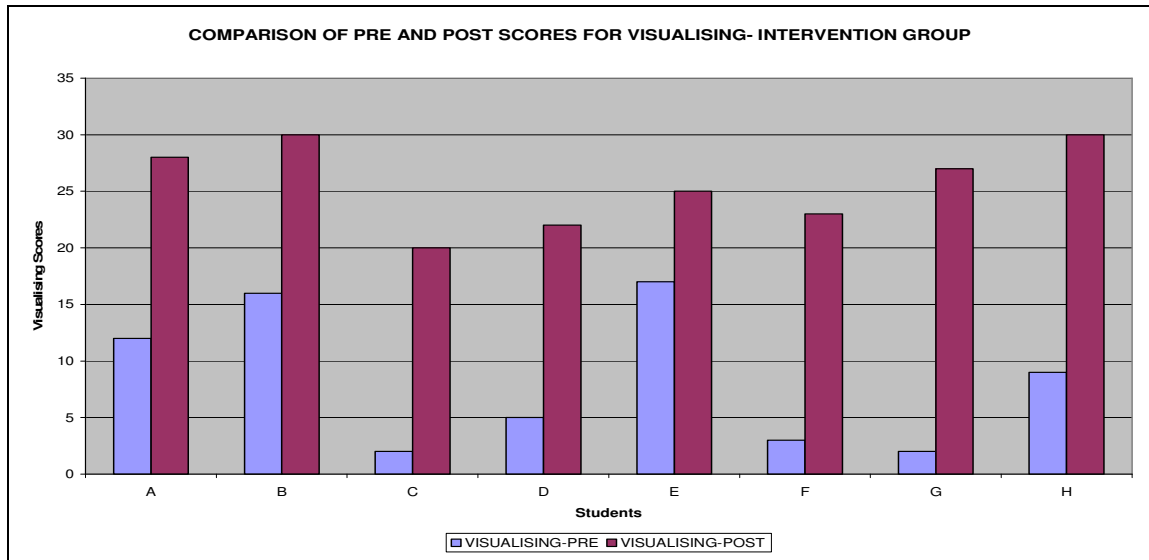
Results

The students in this study achieved Burt scores that were above their chronological ages, indicating that their main area of need was not word recognition, but comprehension. Their average reading age, according to their Burt scores, was 11 years 4 months, compared to their average real age of 8 years 2 months. In the control group, the average reading age was 10years 1 month, compared to the average chronological age of 9 years 9 months- a closer match, but still indicating that their word reading was at an appropriate level.

The results, as shown in the graph in Figure 2, indicate that students were more able to use visualization skills following the intervention strategy. All students in this group could use visualization more effectively in the post testing than in the pre test period.

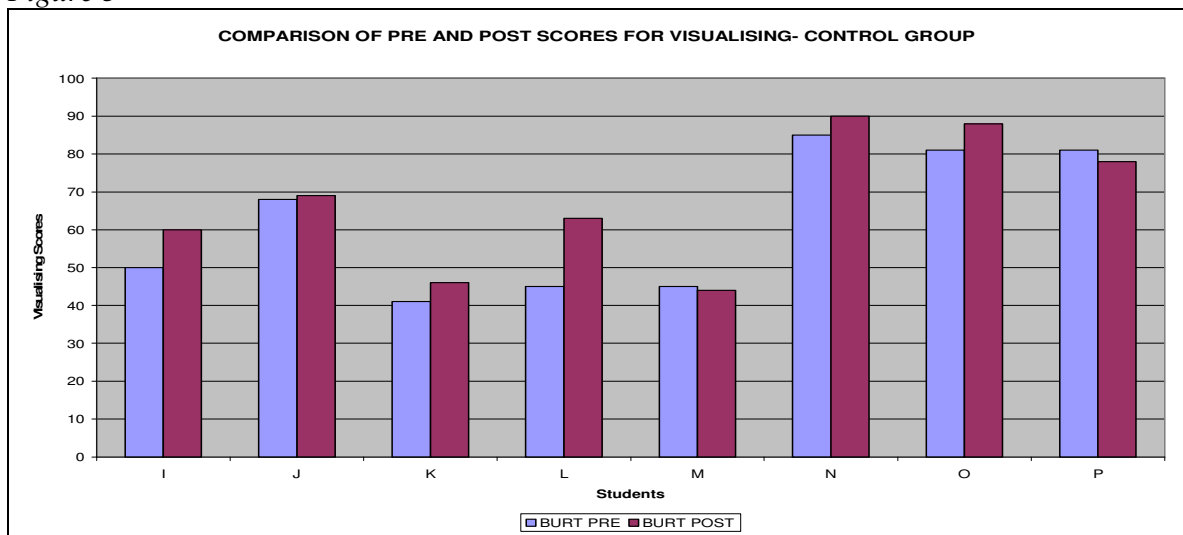
For these students, the gains made were considerable in this area.

Figure 2



The students in the control group, as shown in Figure 3, did not make these gains in the specific skill of visualizing. Students I and L made some significant improvements in their post test scores, but most students had minimal change. Students M and P had minor decreases in their scores in this area.

Figure 3



While most students made gains in their comprehension skills according to the Torch results, there was not a significant difference between the intervention and control groups in terms of comprehension (Table 3). Both groups achieved a higher average

score in the post testing, but the intervention group scored only a slight improvement on the other students.

Table 3: Average Torch Comprehension Scores

	Intervention Group	Control Group
Comprehension Pre test	29.36	28.45
Comprehension Post test	39.36	35.73
<i>Difference in scores</i>	<i>10</i>	<i>7.28</i>

After the explicit teaching in visualizing skills, six students improved their comprehension scores, with four students making significant gains (Students B, D, G, and H). Two students had similar scores, with just a decrease of one point in both cases (Students C and E). Interestingly, the control group also had four students who made significant gains (Students K, L, M, and O). After a follow up interview with the control group’s teacher, it seems that this group had received instruction on monitoring their comprehension during the period of the research and students were prompted to make sure that the text made sense. Despite this instruction, two of the control group (Students J and N) achieved lower scores in the post testing. For these students, the decrease in score was considerable. (See Figures 4 and 5)

Figure 4

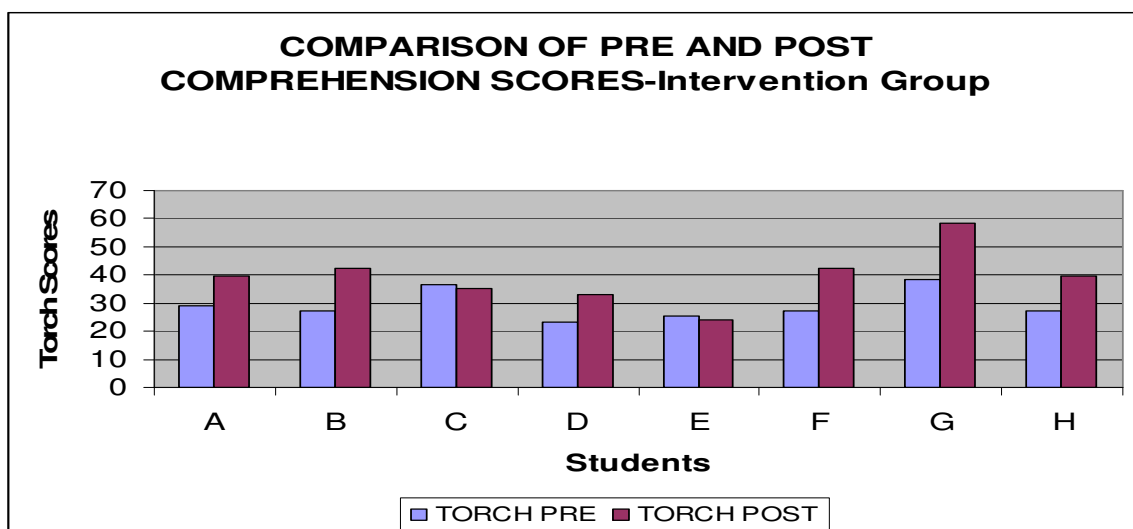
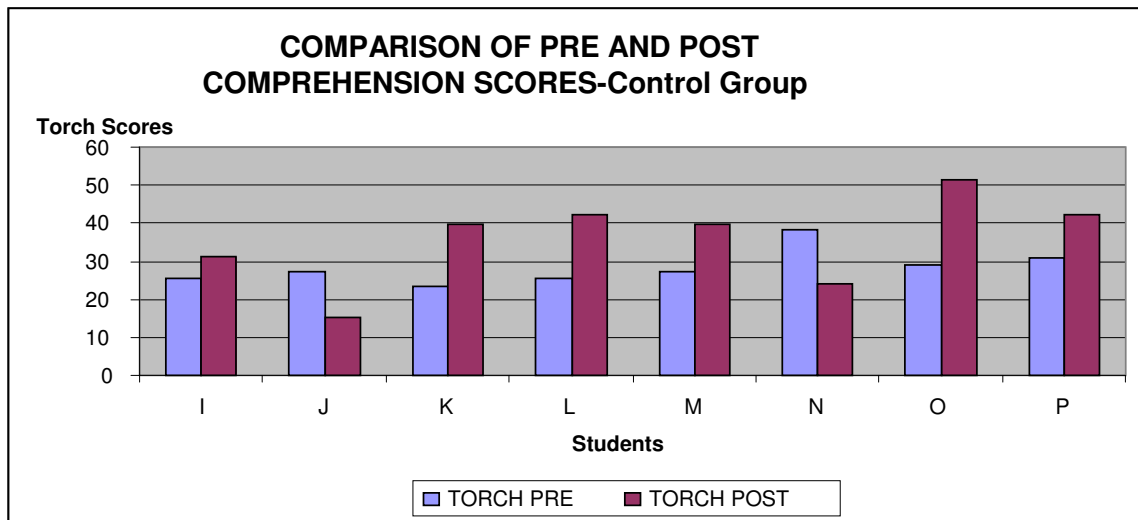


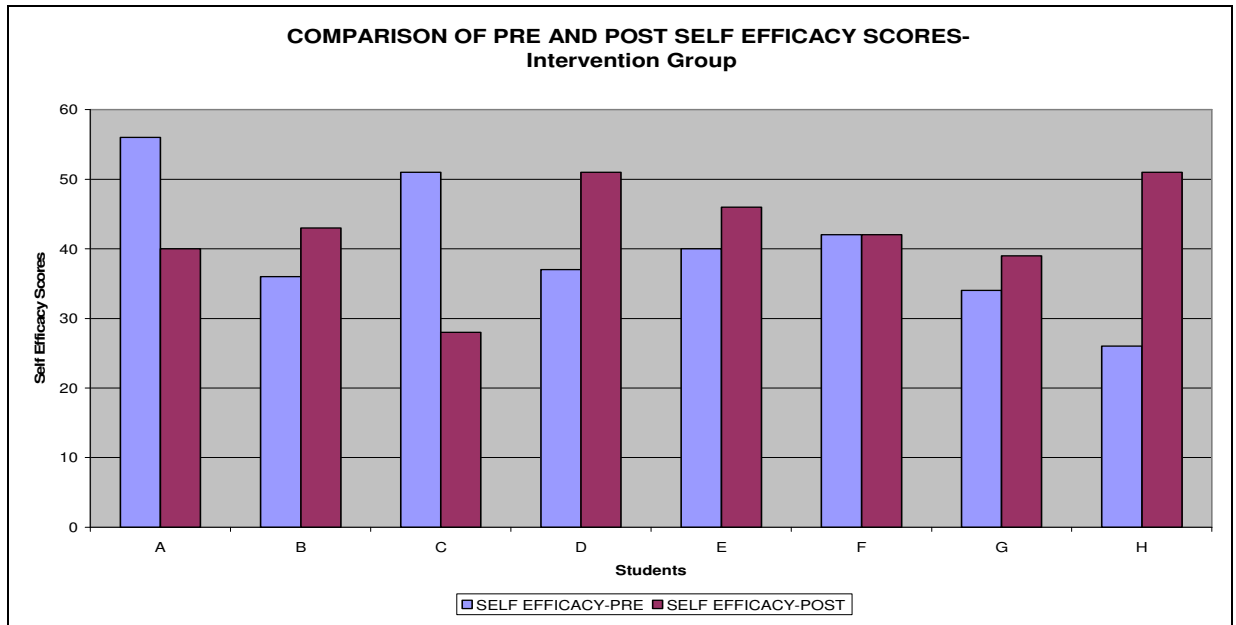
Figure 5



The most significant gains in comprehension scores were made by student O (22.2 points) and G (20.4 points). After analysis of the way students answered the questions in the final Torch passage, most errors were made on items requiring them to provide a detail in the presence of competing answers and to infer a relationship that is not directly stated (See appendix). On these items (Questions 5, 16, 18, 19 of the Grasshoppers assessment), there was a similarity in the number of students from the intervention and control group who had some difficulty.

When the results of the self efficacy testing are compared (Figures 6 and 7), there was no significant difference in the scores of the intervention group and control groups. In the first group, there was a difference of 2.25 in the average scores of the pre and post testing. In the second group, the difference in these scores was 2.38.

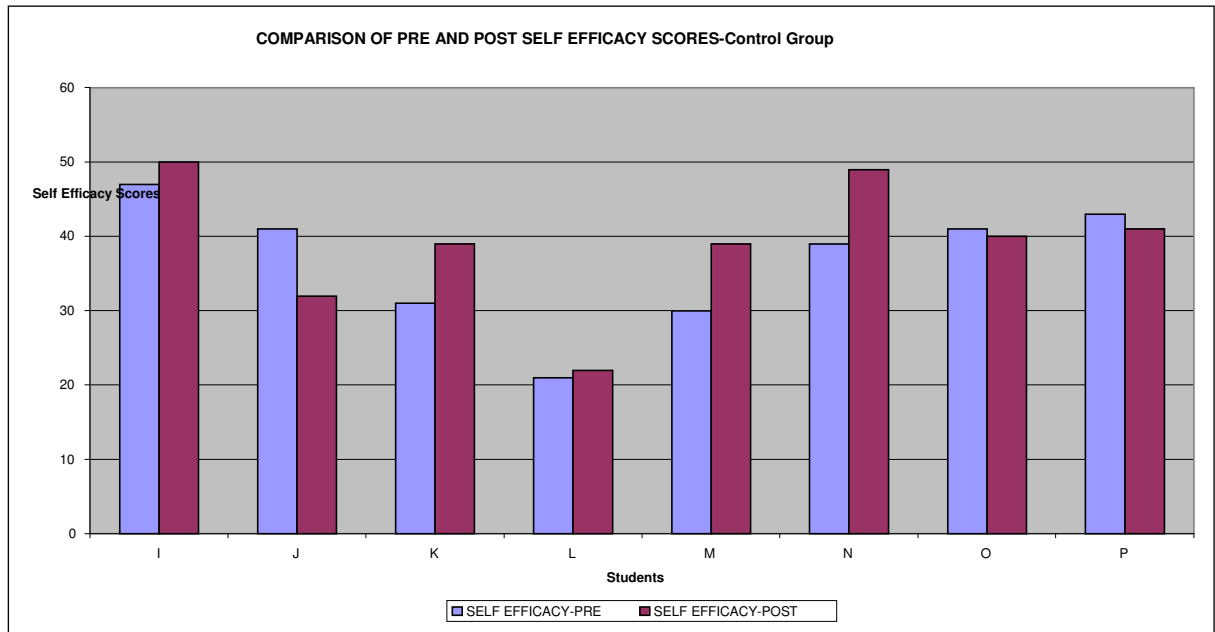
Figure 6



Students A and C were initially optimistic in their self efficacy ratings, scoring themselves high in comparison to other students. These students gave themselves high scores for areas in which they actually had some difficulty. Student C was usually silent in her classroom and needed encouragement to participate in the group discussions. Some of her written reflections indicate that she preferred to read the whole story rather than reflect on individual sentences (See Appendix 4). After instruction in visualizing and monitoring their reading, they scored themselves considerably lower. Students D and H made noticeable gains in their results, producing the greatest improvements of all the students. Five of the students in the instruction group had gains in terms of their self efficacy.

Figure 7 shows that student J had a lower post test score than in the pretest, while O, P and L achieved similar scores, with only minor differences. I, K, M and N achieved higher scores at the end of the research.

Figure 7



These results support the prediction that explicit instruction does lead to an improvement in comprehension skills. There was a trend to increased scores in both groups. As the control group also received some instruction, this conclusion can be justified. It can also be concluded that the students who received instruction in visualization skills made considerable gains in this area. However, this research is inconclusive about the prediction that explicit instruction in visualization skills leads to improvement in comprehension, as there was not a significant difference between the final comprehension scores of the two groups of students.

Discussion

This study was designed to investigate the hypothesis that explicit teaching of visualization strategies to Year 3 and 4 students improves their comprehension. A secondary purpose of the study was to see if students from an ESL background could benefit from visualization strategies and become more efficient at monitoring their own comprehension. The study shows some positive trends towards improving comprehension, although the difference between the control and intervention groups was not significant for comprehension.

Certainly, these ESL students did take a more active role in understanding the texts used during the lessons. Prior to the study, these students were not engaging with the texts they read. They saw reading as an exercise to work out the words, as can be evidenced by their reflections at the start of the intervention. When asked what they did to understand what they read, the following responses were typical:

Student D: *I try to sound it out and then I get used to it.*

Student E: *I ask for help.*

Student L: *I'm not good at reading because sometimes I spell wrong.*

They had difficulty making connections in the text and the initial Visualization Task showed some interesting patterns in their responses. Many of these students understood the task to make a picture in their minds, yet this picture often singled out isolated words in the sentence and involved a prediction of what might happen. They were certainly making movies- the trouble was that their movies had nothing to do with the actual text! There was also little evidence of these students making links between the sentences, with students creating different word stories for individual sentences. The example below reflects the type of responses recorded for many students:

Text Sentence	Response of Student C
The young man and his friend rode on the bike.	I see them two riding on a hill.
They were enjoying themselves.	They were having a party and they celebrated it and they thought it was fun.
The birds were singing in the trees.	A little girl was sleeping in the morning and the birds woke her up.

Munro (2005) recognizes that students may have difficulties at different levels and these students seem to need support at sentence and concept level. Explicit teaching about visualizing sentences, with a focus on the evaluating stage of the R.I.D.E.R strategy, did make a considerable difference to the way the students connected with what they read. The results support the finding that students could visualize more effectively at the conclusion of the instruction. Wood and Endres (2004) cite a number of studies which also found that students of all abilities could be taught to create mental images in response to text (Finch, 1982; Gambrell & Bales, 1986; Gambrell & Koskinen, 1982).

This improvement in the ability to visualize did seem to transfer into their comprehension for many students in the teaching group, although they were not prompted to use this strategy during the post testing and the text used then was a non fiction one. As evidence of the improved self monitoring, Student G stopped at one stage of the Visualization post test and stated, “I can’t get the picture for that one because I don’t know what that word means.”. Previously, he would have read on without stopping. This would support the work of Ketch (2005), Kelly(2000), Duke and Pearson et al(2002) who suggest that effective readers are active readers who make decisions as they read and question the meanings they make. Pressley and

Afflerbach (1995, cited in Pressley, 2000) also support the notion of active reading. In most cases, students felt better about themselves as readers after the intervention, which may motivate them to practice their reading more regularly.

Unexpectedly, the control group also made gains in their comprehension. After further exploration, these students had received explicit instruction from their class teacher during the research period and were encouraged to ask themselves “Does that make sense?” as they read. As this strategy also focused on self monitoring, it may account for some of the gains made by students in the group.

At the conclusion of the study, there are some implications for teaching these students. Firstly, difficulties with oral language and some self efficacy issues initially hindered their willingness to contribute to discussions. They needed ongoing praise related to the skill they were practising to describe their pictures in a group setting. Sometimes allowing them to draw their images provided an opportunity for rehearsal of their description in a non threatening way. When the text contained vocabulary that was unfamiliar, some students needed support to form a concept about the word and create the picture. These students require assistance to make connections between their prior knowledge and the text content.

These students also needed ten sessions to learn the visualization strategy. It was important to use small amounts of text, such as individual sentences, to explicitly teach the strategy. In order for this to become something they use independently, ongoing support is necessary until their comprehension has significantly improved and they are not reliant on prompting. Further research would be interesting to

determine if the students in the intervention group continue to use this strategy. This study used fiction texts throughout the instruction, yet the assessment materials used were both non-fiction texts. What effect did this have on the results obtained?

The study has explored visualization as a strategy to improve comprehension. As one tool to use in attempting to engage students with understanding the texts, it would appear to be effective. Is it the most effective strategy to teach comprehension? The results in this study were inconclusive and further research is needed in this area.

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Appendix

Appendix 1

Teaching Sessions- Visualizing

Session 1:

- Have students reflect and write about what they do to make sense of what they read.
- Explain purpose of the sessions: *We are going to explore a strategy called visualizing and see if it helps us to understand what we read.*
- Introduce concept of visualizing with
 - a) word cards: *Read this word and make a picture in your mind about it. Then I want you to quickly draw your picture.* Show card for house. Teacher models how to describe the picture she drew. (E.g. *I saw the outside of a brick house. It has a path leading up to the front door and a large tree in the front yard. I can see curtains in the windows.*) Repeat process for the word dog.
 - b) Sentence strips. Explain that when the word is part of a sentence, other words also help us make the picture: *This time the word house is in a sentence and the other words might make us think about a different picture.* Read a sentence strip containing the word house- Everyone in the house was asleep. Teacher models the picture in her mind: *I can see inside the house now. The parents and children are sleeping in their bedrooms. Tell me about your picture.* Allow students to describe pictures and if they are off the track, say: *We need to check we are making our picture so that it matches the words in the sentence. Let's read the sentence again to see if you need to change your picture.* Teacher continues to model the process with the following sentences from the text, *The next sentences are from a story, so our pictures have to be like a movie. Let's read each one and see if we can make a picture.* Allow students to draw, to provide support for the description of the next sentence. Have students describe their pictures, and discuss how these relate to the text.

In the kitchen a spark started a small fire.
But nobody knew.

The teacher then asks the students to try to describe their own mind pictures for the following sentences:

Soon the house was on fire.
'Dee-dee-dee-dee-dee' went the alarms on the smoke detectors.
Dudley the dog began to bark.
Sam woke up with a fright.

- Reinforce the strategy: *We have been practising a strategy to help us understand what we read. It is called visualizing.*

- Reflection: *What would you tell the rest of the class about what we have been doing?* Allow each student to discuss the session.

Session 2:

- Recall purpose of sessions. Have students recall strategy to be practised.
- Teacher modeling of strategy:
Revise some sentences from previous session, with volunteer members of the group describing their pictures. Using more sentence strips based on the same text, the teacher describes the picture in her mind after each sentence.
Sam rolled out of bed.
He remembered to stay low beneath the smoke.
- Group practice:
The teacher reminds students: *We need to check that our pictures match the words we have read and change them if they do not match. As someone describes their picture, let's check that it matches what we read.* Have the group discuss whether the picture could match the words in the sentence.
- Individual practice:
Have students individually draw and describe their pictures for the sentences:
- Introduce the R.I.D.E.R bookmark: *What we have been doing is reading a sentence, making a picture in our minds, describing our picture and checking or evaluating that it matches the words. We have tried to keep the picture in our minds when we read on.* Allow students to discuss words on the bookmark in relation to session activities and invite them to try it with their reading activities.
- Reflection: Have students reflect on how they feel about the session and visualizing strategy.

Session 3:

- Student reflection about their efforts to use the visualizing strategy.
- Revise R.I.D.E.R steps with the bookmarks.
- Group practice of the R.I.D.E.R strategy with sentences written on cards. Reinforce the importance of matching the picture to the words in the sentences, checking and adjusting the picture if necessary, before reading on.
- Discuss how to use R.I.D.E.R strategy in a paragraph of text. Say *I want you to read this paragraph in the book and use your R.I.D.E.R strategy. Read the paragraph and make the picture in your mind. Then draw it.* Allow the students to describe their pictures, checking that the pictures appropriately match the sentences. Involve other students by having them listen to the descriptions and participating in the checking (evaluating) stage.
- Reflection: Have students reflect on how they felt about using the strategy.

Session 4:

- Review efforts to use R.I.D.E.R since previous session.
- Students individually record what they have learnt in the sessions.

- Group practice of visualizing strategy in a text: Please Stop Barking by Pat Collins
When we read, what are we going to do to help us understand the text?
Allow students to recall steps in the R.I.D.E.R strategy. Work on the first two sentences as a group, ensuring the pictures match the text and encouraging more detailed pictures by imagining expressions on characters. Have students act out the expressions on faces in their mind pictures to develop descriptive skills.
Saturday was an exciting day for the Turbot family. Saturday was the day that Mum was bringing their new puppy home.
- Individual practice: Students read next two sentences. Draw their pictures and describe them and check themselves if the pictures are matching the text.
Hilary Turbot and her dad were about to nail a board onto the kennel. They heard the car drive up the driveway.
Teacher provides positive feedback for efforts made.
Repeat procedure with next two sentences:
"They're here!" shouted Hilary, dropping her Hammer. She ran to the front of the house.
- Linking the sentences: Say 'When we read a book, it is like keeping a movie of our pictures.' Have students retell what has been read so far, from their own pictures.
- Reflection: Discuss how students feel about their efforts.

Session 5:

- Have students articulate what they have learnt about visualizing, using the R.I.D.E.R bookmarks as prompts.
- Revise previous session:
Have students reread the introduction to the book Please Stop Barking, make the picture in their minds and describe their pictures.
- Guided practice: Read on, checking pictures made after each sentence.
- Individual practice: Allow students to read a few sentences, practising the visualizing strategy and drawing their picture. Ask them to explain how their pictures match the text.
- Reflection: Discuss how the visualizing strategy can help with their reading.

Session 6:

- Review of R.I.D.E.R: Have students record what actions they take for each step of the strategy.
- Revise text from previous session. Have students reread and describe their pictures.
- Guided practice: Read on from p9 of the book, Please Stop Barking, checking pictures after two or three sentences and evaluating them against the text.
Individual practice: Students continue reading a few sentences and make their pictures. After evaluating their pictures, they continue to read text. Discuss what they see after short passages of text. Say *Now I want you to try the R.I.D.E.R strategy by yourself. You can continue to read the book, and when*

you have finished up to this page, you will need to describe what has happened. Use the pictures in your mind to help you.

- Reflection: Discuss: Why is it important to check our pictures against the text?

Session 7:

- Preparing for reading: Ask: *What are you going to do when you are reading today?*
- Revise text covered in previous session. Ask students to reread sections of text and describe their pictures.
- Individual practice: Students continue reading a few sentences and make their pictures. After evaluating their pictures, they continue to read text. Discuss what they see after short passages of text. Have students retell story after reading is complete.
- Ask students to reflect on how they went with their independent reading.

Session 8:

- Preparing for reading: Ask: *What are you going to do to when you are reading today? How will you check your pictures?*
- Guided practice: Introduce short paragraphs from new text: Rosie's House (Susan Reid). Have students read the paragraph and illustrate the picture in their mind. They then describe their picture and evaluate it.
- Individual practice: Students continue reading a few sentences and make their pictures. After evaluating their pictures, they continue to read text to p14. Discuss what they see after short passages of text. Have students retell story up to this point. Texts left in classroom for students to read independently.
- Reflection: *What worked for you today? What do you need to try with your reading until our next session?*

Session 9:

- Discuss strategies used since last session.
- Guided practice with paragraphs from fiction text: Rosie's House
- Independent practice with this text.
- Reflection: Students write how they feel about their visualizing strategies

Session 10:

- Discuss: How can the R.I.D.E.R strategy help us with non-fiction texts?
- Guided practice with paragraphs from fiction text: Rosie's House
- Independent practice with fiction text
- Reflection: What have you learnt? What will you try when you are reading?






Appendix 2:

Sample student reflections during the teaching sessions:

Student	Reflection
A	Visualizing helps me to put a picture in my head when I'm reading.
B	Visualizing helps me when I don't know what's happening.
C	I feel a bit nervous in this group. I will try the RIDER strategy and evaluate my movie theatre too, but the main thing I'm going to do is flow with the STORY!!!.
D	Visualizing helps me to put a picture in my mind and say it to someone. When I was reading it felt great when I was visualizing-100%. Before it was 30%.
E	When I'm in this group it makes me feel special. Visualizing helps me read better
F	I tried it when I was reading. It was a little bit hard but I tried with a book.
G	I did try, but it was really hard and sometimes it was too hard. Visualizing helps me. Great! And now I enjoy reading!
H	I did try visualizing, but it was really hard. It helps me because it's fun. Now it is easy.

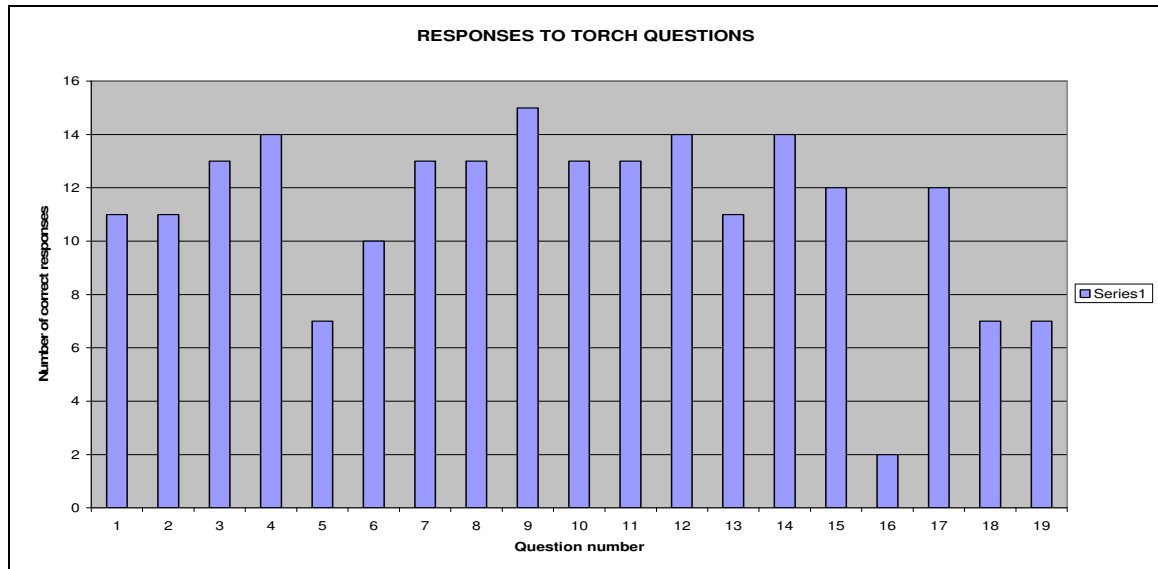
Appendix 3:

Bookmark used to prompt students to use R.I.D.E.R. between sessions.

Read	
Imagine Make a picture or movie in your mind	
Describe Tell someone else about your picture	
Evaluate Check that your picture matches what is written and change it if necessary	
Read on	

Appendix 4:

Correct responses to items on the TORCH test- Grasshoppers. Graph includes students in the intervention and control group.



Appendix 5: Self Efficacy Survey

To administer the questionnaire, the student needs to point to the face which best describes their answer. Introduce the sheet of faces with the practice questions. The faces relate to the following five responses:

- I know I can't
- I think I can't
- I'm half and half sure
- I think I can
- I know I can

Record the student's response to a question by ticking the appropriate box.

Self-efficacy scales

Name: _____ Date: _____

Review session: _____

In a few minutes you are going to do some reading. I'm going to ask you how you feel about some things you do when you read. It isn't a test. There are no right and wrong answers. It is just about you and what you feel. First of all for practice I'm going to ask you how sure you are about doing some every day things. Each time you can say:

I know I can't	I think I can't	I'm half and half sure	I think I can	I know I can
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Let's practise with these things. How sure are you that you can drink a can of Coke. If you know you can, point to this square (far right), if you think you can point to this square, if you are not sure either way point to this square, if you think you can't point to this square and if you know you can't, point to this square (far left).

How sure are you that you can

1	catch a ball?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	eat a cake?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	spell supercalifragilisticexpialidocious?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	ride a horse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

How sure are you that you can

1	work out new words?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	understand each sentence?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	correct any mistakes you make?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	put together the ideas in the story?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	say each word?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6	remember what happens in the story as you read it?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
7	read smoothly?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
8	remember words you have read lots of times already?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
9	make a picture in your mind as you read?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
10	tell me what the story is about when you have finished it?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
11	answer questions about the story?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
12	read fast enough to keep the ideas in your mind?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>

Please tick only one box.

1. If you come to a word you don't know when you are reading would you	try to work out what the word is?	wait for someone to tell you?
2. If you made a mistake in reading would you	do nothing about it?	try to fix it up?
3. When you find words hard to read do you	work them out ?	give up on them?
4. When you read a sentence that doesn't make sense do you	go on reading because it doesn't really matter?	read it again to try to understand it better?
5. When you find a story you are reading hard to understand do you	not worry about it because you can't understand every story?	try harder to understand it?
6. When you have trouble working out how to say words do you	find a way to get them right ?	think you will get them wrong no matter what you do?

Appendix 6:

Visualising task: Individual administration

John Munro

In this task we are going to be reading (or listening to) sentences and then describing the picture that you make in your mind.

Look at the first two sentences. These are part of a story. I will read them and I want you to read them to yourself with me. Then I will think about what the story might say next. I want you to think about what it might say as well.

Teacher reads the two sentences. Then the teacher describes the picture they have made in their mind: *In my mind I see a man wearing work clothes going to live in a strange town. In his bag he has toys he has made and tools for making them. He is looking around the new town. Now you have a go at making your picture. Then describe what your picture has in it.*

Now you have a go at the second sentence. The teacher then reads the next sentence to the student (or the student reads the sentence). *Now have a go at making a mind picture of it. Then describe your picture in words. Now listen to the picture I made. It says "He wanted to find a place to live. "I can see the man looking at a house where he could live.*

Now you have a go at the third sentence. The teacher then reads the next sentence to the student (or the student reads the sentence). *Now have a go at making a mind picture of it. Then describe your picture in words.*

Now you have a go at the fourth sentence. The teacher then reads the next sentence to the student (or the student reads the sentence). *Now have a go at making a mind picture of it. Then describe your picture in words. Now listen to how I say it. It says "After he bought a map he looked for a bus. I can see the man buying a map and then looking in the street for a bus stop." Write down what I have said in the space.*

Practice items

Sentence read	Teacher	Teacher writes child's response
A toy maker went to live in another city. He wanted to find a place to live.	This person who makes toys moved to a new town.	
	He needed to get a house to stay.	
He needs to get to know the city.	He wants to find out where things are in the town.	
After he bought a map he looked for a bus.	First he got himself a map. Then he searched for a bus stop.	

Introduce the set of target sentences. Give the student the following instructions: Listen to (or read each sentence to yourself). *Make a picture of it in your mind. Then describe your picture in words.*

The young man and his friend rode on the bike.	
They were enjoying themselves.	
The birds were singing in the trees.	
The two friends chatted. They were not paying attention to anything.	
They were supposed to watch where they were going.	
The track became narrow and twisted.	
Suddenly it began to slope down and the bike sped up.	
People in the park watched and gasped as it went faster and faster.	
The two riders weren't smiling and chatting any longer.	
Now they were gripping the bike as tightly as they could, showing fear on their faces.	
People in the park had stopped what they were doing and started to yell, "Stop" or "Be careful".	
All of a sudden the path goes around a sharp curve.	
Ahead they see in the middle of the path, a huge stone.	
The closer they get to it, the more enormous it becomes.	
As they fly towards it, their hearts are beating louder and louder and they try to take avoidance action.	
There is loud thud, the front wheel crumples and the young couple is airborne, flying over the obstacle to the grass on the side of the path.	