

Explicit teaching of metacognitive strategies before, during and after reading improves students reading comprehension and self efficacy.

ABSTRACT

The hypothesis of this action research project is that explicit teaching of 'at risk' grade one students to activate self management (metacognitive) strategies before, during and after reading will enhance comprehension of text in turn impacting on the readers self efficacy.

The present study compared seven like students; an intervention group consisting of four students and a control group of three students. The intervention group was explicitly taught to activate self management (metacognitive) strategies before, during and after reading using an array of reading comprehension instructional strategies. The control group continued Literacy sessions consisting of the whole, small, whole approach within the classroom environment.

The results of this study pertaining to the intervention group demonstrated support for the hypothesis that through the use of explicit, focused teaching and learning of metacognitive strategies there was positive impact on the readers comprehension of text and the readers self efficacy.

Further investigation would be required to ascertain if the participants maintained the use of self-regulated metacognitive strategies in mainstream classroom experiences and over time.

Fountas & Pinnell, (2006, p. 3) state that “reading is more than basic decoding competency. It has potential to nourish the intellect, the emotions, and the spirit. A child who lives a literate life in school and has pleasurable experiences with written language will make a place for reading and writing throughout life”. The transference of skills and strategies used for accessing print is the aim of Literacy education. Furthermore, they go on to say that literacy comprises a network of in-the-head processes that enable the reader to pick up information from the text and construct the author’s intended meaning. Comprehending is actively making meaning using this in-the-head problem solving. All the complex operations of the brain before, during and after reading a text – cognitive, linguistic, sensory-motor, emotional, artistic, and creative – are operating as readers process texts (Fountas et al, 2006, p4).

For some students this occurs naturally through exposure to the process and strategies of reading through classroom and at home experiences. For the reading challenged student these processes and strategies need to be explicitly taught and is the focus of the current study.

Publications of the past, present and future such as the Curriculum Standards Frameworks (C.S.F.), Victorian Essential Learning Standards (VELS), and the draft Australian National Curriculum mandate that as educators the responsibility is ours to ensure that our students demonstrate across curriculum prescribed capabilities at the various levels of learning. The Australian Curriculum K-10 Draft for English contains three interrelated strands of Language, Literature and Literacy. It has as one of its underpinning foci “how language enables people to create meaning in a broad

range of forms and contexts” (www.ag.gov.au/cca pp 4). The omnipotent word ‘meaning’ is ever present.

Reading is consistently considered the nucleus of successful academic performance and as students advance through school, making meaning from multimodal texts becomes increasingly crucial. It is essential to equip students with strategies that will support meaningful interaction with text. Reading has three key components, accuracy, inclusive of phonological and orthographic processing, fluency and comprehension. Raised awareness of the complexities and intricacies of reading has rapidly grown and has provoked much research into aspects of challenges that prevent reading success for an increasing number of students.

Educators indicate that the reading focus has been on ‘decoding and accuracy’. Parker & Hurry (2007, p. 313) add support by stating that literacy areas such as comprehension “have received less attention from researchers and policy makers”. As educators we are aware that reading does not only involve demonstrating an awareness of print to facilitate decoding but the need for vocabulary knowledge and metacognitive skills to allow for monitoring and promotion of understanding and to facilitate internal and external reflection and dialogue of what has been read.

Researchers such as Juel, & Graves, (2006) and Munro (2010) (as cited in Weaver, 2002, p3) concur that the essence of reading is obtaining meaning. Munro states that “Acquisition of the literacy symbolic system involves the successful integration and automatization of several areas of knowledge” as can be seen in the development of the Multiple Levels of Text Processing Model (MLOTP, 2010).

Strategic and critical readers learn to read and process texts moving between word, sentence, conceptual and topic levels effectively and integrate these into their schemata rapidly. When no one level needs more attention than another the reader is able to integrate all knowledge to establish understanding.

Juel, & Graves refer to Rosenblatt (1978) and her context of the transactional theory of reading. She states “meaning does not reside in the text itself, nor can meaning be found just with the reader: in fact, it is when the two transact that meaning occurs” (cited in *The Reading Teacher*, 2001, p 111).

Contemporary and past research espouses the validity of explicit teaching of specific metacognitive strategies to enhance a student’s comprehension of text. Clay (1993) advocated the validity of the need for explicit teaching of strategies that promoted development of ‘a self extending system’ and Sowell (2003) added support by stating there is a need to “empower students to become more self reliant readers” especially the reading challenged. A synchronicity of like thinking between Researchers as to the importance of the knowledge of metacognitive strategies to support reading comprehension continues to emerge.

Brown, Pressley, VanMeter, & Schuder, 1996: Vaughn, Chard, Bryant, & Pedrotty, 2000, Beckman, 2002 advocate that to become a strategic and successful reader the use of self regulating metacognitive practices is needed and there is need for these to be explicitly taught especially for those exhibiting reading difficulties (as cited in Mason, 2004). A number of studies state that metacognition – awareness and control

of ones thinking processes – is not solely developmental, and it can be enhanced through training (as cited in *The Reading Teacher*).

Although it is the individual who processes and interprets the text, support can be given by explicit teaching and teaching strategies that enable the reader to process the text with accuracy and understanding, and make reasonable interpretations of the ideas within the text and transfer this knowledge to other texts (Fountas & Pinnell, 2006, p. 9).

Guthrie & Wigfield, 2000; Pressley, 2006 cited in the *Reading Teacher* (p 111) put forward the importance of motivation for students to engage with text in a meaningful way. Bandura states that “if students lack engagement with texts, they are unlikely to tap into whatever reading strengths and strategies they possess” (p 57).

Comprehension is not an obvious process but rather an inner self – dialogue about making meaning. It is when students engage with reading knowing they have a repertoire of self-talk that they can activate that we observe the emergence of positive self efficacy.

If students believe, for example, that they have a good chance of succeeding at understanding what they are reading, then they are likely to be more motivated to engage in reading. Bandura’s explanation of self -efficacy is “people’s judgement of their abilities to organise and execute courses of action required to attain designated types of performance” (1986). (*Educational Leadership* (2006 pg 56) and goes on to say that self -efficacy is the “I can” belief in one’s self. The need is to empower students to have the “I believe’ motivator by equipping them with self regulated metacognitive strategies.

Strategies are seen to be tools for improved student outcomes and hence school achievement. Anstey & Bull's, (2004) research showed that students in the lower and middle elementary grades demonstrated that learners benefited from instruction in metacognitive strategies thus assisting them to become effective learners early in their schooling years.

The current study aims to add to the research discussed by explicitly teaching 'at risk' year one students metacognitive strategies to enhance reading comprehension and to enhance the 'I believe' thinking of the participants in intervention group sessions.

The prediction is that by scaffolding the students to include metacognitive strategies into their 'reading repertoire' they will become proactive, successful readers who engage with text using all the complex operations of the in-the-head processes before, during and after reading a text – cognitive, linguistic, sensory-motor, emotional, artistic, and creative to facilitate a complete meaning making of the print on the page and to transfer what commences as the process of reading to the lifelong interaction with text.

Method

Design

The current research action project used a case study OXO design, in which the use of metacognitive strategies before, during and after reading were explicitly taught through a series of intervention sessions to enhance the participants active participation in order to augment the participant's self efficacy and comprehension of text.

The design of the intervention sessions were inclusive of the following:

Three models of teaching and learning were considered when developing the structure and format of the planned ten sessions. These being Munro's Multiple Level of Text Processing (MLOTP, 2010), the Gradual Release of Responsibility Model developed by Pearson and Gallagher, 1983 and outlined in Hervey, (2006) and the Collins Model of Teaching and Learning Collins, Brown & Newman (1989) to ensure that by the conclusion of the sessions the participants were beginning to demonstrate self regulated activation for their 'strategy self talk before, during and after reading'.

The use of these models to underpin the sessions allowed for the teacher to model through the strategies of 'read to and think aloud' and 'reciprocal teaching', reducing the students responsibility to decode and focus on strategy development, coach to scaffold use of strategies through 'buddy reading' allowing for shared responsibility and participation. Collaborative learning through reciprocal reading/teaching with the use of assigned responsibility for a task and fading to passing the 'leader cue card' to a student to run the group. Opportunity to reflect on learning was part of each session. Due consideration was also given to the knowledge that learning is a shared activity and numerous studies have identified that 'peer interactive learning is conducive and perhaps essential to cognitive development'. The inclusion of these models of learning and teaching directed that the participants experienced a variety of teaching strategies i.e. Interactive Read Aloud, Peer Collaborative Learning (Buddy Reading, peer coaching for strategy use, discussion and feedback), Choral reading, Reciprocal Reading.

The choices of these strategies have research underpinnings that support improvement in comprehension ((Brown, Pressley, Van Meter, & Schuder, 1996: Duffy et al., Mason 2004).

Participants

The study compared the pre and post test results of an intervention group of four students and a control group of 3 students. Participants attend a small coeducational catholic primary school in the outer north- west region of Melbourne. The school demographics consist of majority of families of Anglo-Saxon backgrounds (as are the participants) and families of reasonable socio-economic circumstances. The participants came from three different classrooms.

Seven students (five female and 2 male) in their second year of schooling (Grade 1) were chosen to participate in the study. Their ages ranged from 81 months to 89 months of age. During the participant's Preparatory year and the beginning of their Grade 1 year all had and still were at the commencement of the Research Project accessing small group Literacy intervention taken by the Special Education Teacher for two half hour sessions a week.

TABLE 1

Intervention and Control Group Demographics

Participant Identification	Group Control -0 Teaching-1	Age in months (as at Oct 2010)	Gender M –Male F-Female	Years of Schooling	Intervention- School based intervention program	Special Needs 0 –None 1 – I.D 2 –SLD 3-SOC EM	EMA YES – 1 NO - 0
A	1	83	M	2	YES	0	0
B	1	83	F	2	YES	0	0
C	1	81	F	2	YES	0	0
D	1	86	F	2	YES	0	0
E	O	85	F	2	YES	0	0
F	O	89	F	2	YES	0	0
G	0	86	M	2	YES	0	0

1 – Intellectual Delay 2 – Speech Language Disorder 3 – Social Emotional Disorder

The selection criterion for choice of students to participate in the study was based upon identification at the end of the first year of schooling (2009) as being ‘most at risk’ in the domain of English specifically reading. Classroom teachers identified these students as ‘concerning’ and underperforming compared to their cohort peers by a substantive level using evidence of School Assessment, Victorian Essential Learning Standards and Catholic Education Office Melbourne Literacy Advance data results. See table 2 for comparative scores against CEOM data standards and targets at Prep year level and commencement of Grade 1. Pre testing data for Grade 1 has been included as an indicator of where these students commenced the Grade 1 year and the expected gains by the completion of the year (Post testing for Grade 1 was unavailable at time of Research completion).

Table 2

Participant selection data

	Burt		Letter ID		Concepts		Marie Clay		Writing Vocab		HRSW		Text Level		ROL	
			0-54		about Print 0-20		Word Test 0-15				0-37		0-28			
CEOM MINIMUM STANDAR DS AND TARGETS	End Prep TGT -30+ AT RISK <20 END GR 1 TGT - 40 +		End Prep TGT - 50 + AT RISK <20 END GR 1 TGT - 54		End Prep TGT - 17+ AT RISK <12 END GR 1 TGT 20+		End Prep TGT - 10+ AT RISK <12 END GR 1 TGT - 15		End Prep TGT - 30 + AT RISK < 20 END GR 1 TGT - 40+		End Prep TGT - 30+ AT RISK <20 END GR 1 TGT - 37		End Prep TGT - LEVEL1 B/M - LEVEL 5 END GR 1 TGT - L 15 B/M - L20		End Prep TGT - 20+ AT RISK <13 END GR 1 TGT 28+	
P	Post '09	Pre '10	Post '09	Pre '10	Post '09	Pre '10	Post '09	Pre '10	Post '09	Pre '10	Post '09	Pre '10	Post '09	Pre '10	Post '09	Pre '10
A1	15	20	53	52	13	18	7	8	21	29	34	34	5	6	24	34
B1	16	23	53	52	17	17	8	9	30	30	34	35	6	7	32	36
C1	15	23	52	53	21	22	11	9	39	28	36	34	11	13	28	30
D1	19	18	51	54	19	20	10	7	26	26	36	36	8	10	12	13
E0	20	21	54	52	19	29	12	11	21	19	32	31	8	11	23	33
F0	36	24	52	53	16	22	13	11	34	40	36	35	10	13	32	37
G0	23	24	51	52	16	19	13	11	24	18	36	35	10	14	25	25

Key: P= Participant

These students were placed on the Reading Recovery tentative selection list at the end of 2009 for 2010. These students did not commence Reading Recovery at the first intake for 2010 based on Reading Recovery criteria.

Four of these seven students were still being identified as 'at risk' and three were demonstrating gains in second semester of 2010. During Reading Recovery second intake assessment the four students were deemed not to be the 'most at risk' and consequently did not access Reading Recovery Intervention.

The identified 'at risk' four students became the intervention group and the three students who were demonstrating gains in literacy competencies according to Teacher observation and Assessment data became the control group. Also considered was the factor that the four intervention participants had shown commencement of strategy knowledge and application in supported situations and it was considered that the explicit teaching in the teaching sessions would be occurring at the appropriate time for best possible integration and at their zone of proximal development. It was the belief that the intervention participants would demonstrate gains in self-efficacy after the ten sessions as a consequence of the format of the sessions based upon growth in student engagement and belief. A control group was required to have a comparison of whether explicit instruction of metacognitive strategies led to growth and change in behaviours measured.

Materials

In order to establish baseline data for the students prior Literacy records and further specific assessment measures were employed. The assessments were administered to the students in a quiet setting away from the classroom. The assessments were administered pre and post the intervention.

Assessment Materials used in the study were as follows:

1. *NEALE Analysis of Reading Ability (Neale, 1996) Revised:*

Pre test: Form 1 – Bird; Form 2 -Road Safety

Post test: Form 1 – Kitten; Form 2- Surprise Parcel

(NB: Participants completed level 3 both in pre and post assessment but results were not included in data as scores did not reach the required minimum for scoring).

AIM: To determine Reading Comprehension, Accuracy and Rate

GOAL: Through use of Pre and Post test data to measure growth in ability to respond accurately to questioning about the content of the text.

METHOD: Test administered individually following the Neale Instructional Manual

SCORING: As per Neale Analysis of Reading Ability Manual using Standardised test scoring.

2. Alpha Assess Testing Texts Oxford University Press 2004 / Running Records

AIM: To ascertain a common instructional level (90% accuracy) for participants, to gauge reading behaviours of text taking a Running Record using the Clay 2005 recording.

GOAL: To note if there was an improvement in Text level and reading accuracy after intervention.

METHOD: Test administered individually, running record taken

SCORING: Percentage / 100 % accuracy

3. Self Efficacy Tests (Chapman & Tunmer, 2002: adapted for the ERIK program)

AIM: to determine how the participants viewed themselves as readers.

GOAL: to establish if upon completion of the intervention there was a growth in the participants self efficacy due to acquired metacognitive knowledge.

METHOD: Test administered individually. The teacher read the question aloud to the participants and the participant responded by pointing or articulating the face or response which best described their response.

SCORING: The participants were scored 1-5 on a sliding scale of negative to positive face response for the first section and 5 points for each of the correct responses in the second section.

In section 1 there was the possibility of the highest score of 60 points and in the second section the highest score of 30. The total score was 90. The students were scored as follows: 0-30 = low self efficacy, 30 – 60 = medium self efficacy, 60 -90 = high self efficacy.

4. *Listening Comprehension / Retell:* (Munro, 2004: taken from the ERIK program).

(NB: The text is read to the participant thus freeing participant from decoding attention).

AIM: to determine if the student is able to retell main components of a narrative story that has been read to them inclusive of story structure.

GOAL: to establish if upon completion of the intervention there was demonstrated growth in the participant's ability to recall and retell main components of stories aided by the students raised awareness of metacognitive strategies.

METHOD: The examiner reads story to the participant making explicit before reading that the participant will retell the story back. Examiner tapes story in order to score.

SCORING: Participant is given 1 mark for each inclusion of sequenced events with a possible total of 20. Story structure is marked at 1 mark for each of the following setting, initiating event, internal response, attempt, consequence, and ending with a possible total of 6.

5. *Probe Reading Observation, Behaviour & Evaluation of Comprehension* (Parkin, Parkin & Pool 1999)

- AIM: to determine and evaluate the participants reading accuracy at age appropriate text and ability to comprehend the text through questioning
- GOAL: to establish if upon completion of the intervention there was demonstrated gains in correct responses to questioning on text reading
- METHOD: Participants tested individually. Inform participants they will be asked questions at completion of reading. Participants read text and teacher completes Running Record. Upon completion participants respond to questions incorporating Reorganisation, Literal, Inference, and Evaluation.
- SCORING: Possible 100% for reading accuracy and a possible 100% for Comprehension

6. *Metacomprehension Strategy Index* (adapted from the Metacomprehension Strategy Index Schmitt, 1990)

- AIM: to determine and evaluate the participant's metacognitive knowledge of before, during and after reading strategies pre and post intervention.
- GOAL: to establish if upon completion of the intervention there was demonstrated growth in the participant's knowledge of metacognitive strategies to use at the various stages of reading.
- METHOD: In a group setting the participants were read the lead statement and then each of the four alternative answers. The participants then circled the response they felt indicated the action, feeling or thought.
- SCORING: Each correct answer scored 1 mark.

Before Reading – possible score 10; During Reading – possible score 10;

After Reading – possible score 5

Other Materials:

- Texts: Picture Story Books & Oxford University Press Level 13 & Level 14 (Appendix A)
- Teaching session outlines as planned by research project teacher (Appendix B)
- Toolkit (Pencil case) and Cue Cards – graphics on colour coded cue cards were chosen to elicit recall of strategy and to trigger memory on how and when to use it. (Appendix C)
- Group Journal - this was used as a reflection tool (Appendix D)
- Strategy Prompt Cards for Room Display (Appendix E)
- Leader Cue Card- to support transfer of teaching from research teacher to students (Appendix F)
- Reciprocal Reading Recording Chart- a visual prompt and recording of thinking sheet (Appendix G)
- Thinking Hats – coloured glitter hats to signify putting on our thinking hats”
- Pencils and paper – used for visualiser to draw ‘picture in mind’

Procedure

- Control and Intervention groups established by criteria
- Contact with parents of participants made and consent letter discussed, consent obtained
- All 7 students were pre- tested and post tested using the outlined testing regime in the two-week period prior to commencement of the intervention.

- Selection of location within school for sessions to occur
- A teaching sequence of 10 sessions providing explicit instruction of the before, during and after Metacognitive reading strategies were developed and taken

Instructional Procedure:

The four intervention participants were involved in ten intervention sessions.

The strategies were introduced in progression of before, during and after reading in the first three sessions and explicit teaching and reinforcement occurred in the following sessions. Participants were withdrawn from their classrooms at 9.45 am daily

The series of ten teaching sessions were planned to take place over a two and half week period, each being of 45 minutes duration. All intervention sessions were taken in the Literacy Leaders office, which is a small room that is quiet and separate to the classrooms.

The following is an overview of the teaching and learning sessions conducted

(For a more detailed outline of the ten sessions accessible in Appendix B).

Session	Goal	Teaching Strategy	Learning Activities
1	To explicitly state the purpose of the sessions. To introduce and model before reading strategies through think aloud To introduce cue Cards to be used as visual prompts.	READ TO: The teacher models the appropriate before reading strategies through 'think aloud'. The teacher reads the text Explicit Praise and feedback	Introduce book Using 'Read To' strategy the teacher stresses before reading strategies of... looking at title, front cover and doing the picture walk Activating own knowledge at dispositional, topic, sentence and word level ... setting the purpose for reading Participants reflect on learning and how it will be used in the

	To enjoy and interact with the reading process		future.
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Session	Goal	Teaching Strategy	Learning Activities
2	<p>For participants to articulate and to practice the 'before reading' strategies modelled in session 1</p> <p>To introduce and model the 'during reading' strategies through think aloud</p> <p>To introduce cue cards to be used as visual prompts</p> <p>To enjoy and interact with the reading process</p>	<p>Scaffold participants' activation of utilisation of 'toolkit & cue cards' for before reading.</p> <p>READ TO/THINK ALOUD</p> <p>Teacher models 'while Reading' strategies whilst reading explicitly stating what is being done and why through think aloud.</p>	<p>Introduce book</p> <p>Teacher and participants revisit 'toolkit' articulating 'before reading' strategies through the visual prompt of the cue cards.</p> <p>Scaffold by question and statements of before I read I will...</p> <p>What do I need to do next?</p> <p>Discuss what we do as readers whilst we read at sentence, conceptual and word level.</p> <p>Introduce cue cards for visual prompts of 'while reading'</p> <p>Read story to participants articulating what, when and why I am making pictures in my mind, making links, clarifying and asking questions and saying it in my own words.</p> <p>Participants reflect on learning and how it will be used in the future.</p>

Session	Goal	Teaching Strategy	Learning Activities
3	<p>To practice using the before and during reading strategies supported by teacher.</p> <p>To introduce and model the 'after reading' strategies through think aloud</p> <p>For students to articulate strategies learnt and articulate when they would activate these strategies.</p> <p>To enjoy and interact with the reading process.</p>	<p>INTERACTIVE READ TO /THINK ALOUD /Explicit praise and feedback</p> <p>Scaffold student's attempts to articulate strategies through the use of sentence starters.</p> <p>Provide explicit praise and restate strategy using shared language gained.</p> <p>Both teacher and participants to think aloud and articulate strategies.</p> <p>Model the 'after reading' strategies through think aloud</p>	<p>Introduce book</p> <p>Participants to take out their before and during reading cue cards and place in order of use and instruct teacher what is to be done.</p> <p>Finishing the statement ...</p> <p>Before reading you need to</p> <p>During reading you need to</p> <p>Teacher reads texts inviting students also to articulate through think aloud what, when and why the known strategies being activated.</p> <p>After reading is complete model the summarising of the story through key ideas, discuss the emotional response and further wonderings.</p> <p>Participants reflect on learning and how it will be used in the future.</p>

Session	Goal	Teaching Strategy	Learning Activities
4	Commence transference of responsibility and action to the participant To enjoy and interact with the reading process.	BUDDY READ/PEER SUPPORT / INTERACTIVE READ TO/Explicit Praise Teacher to rove and scaffold participant's attempts through supporting and encouraging interaction between participants and model where needed articulation of strategy. Give explicit praise e.g. I liked the way you stated your understanding of the before reading strategy Continue for during and after reading strategy use and discussion.	Introduce text With their reading buddy and using their completed 'reading toolkit' and visual cue cards take turns to support their statements state what they need to do before they read. Teacher to ask "Are you ready to read?" Buddy read story to page ... Use toolkit to support strategy use for while reading strategies Read on till finish and use toolkit to support strategy use and share after reading thinking. Teacher to read story to participants to promote modelling and articulating strategies, demonstrate fluent and phrased reading and promote self-talk. Promote taking part actively. Participants reflect on learning and how it will be used in the future.

5	Goal	Teaching Strategy	Learning Activity
	To observe what participants say and do 'independently in order to focus next 5 lessons at point of need.	Observation of participants during buddy reading time. Observe reading behaviours and specific language use associated with reading strategies being taught. Reflection by participants	Distribute books to students and tell them that it is free 'buddy read' time. Participants reflect on learning and which strategies they used independently.

(NB: See Discussion for variation in lesson structure)

6	GOAL	Teaching Strategy	Learning Activity
	To introduce participants to the reciprocal reading/teaching recording sheet and tasks in reciprocal reading through interactive	Interactive read to/Reciprocal teaching and reading	Ask participants to articulate and discuss the what/when, how and why of their 'toolkit strategies' without the visual prompt. Introduce text Explain that we will use our strategy knowledge to help us

	<p>read to in order to reduce reading load.</p> <p>Continue to reduce teacher input</p> <p>Engage and interact with text</p>		<p>read and understand the text using the strategy of Reciprocal reading and teaching. Explain the process and the tasks.</p> <p>Model the process through interactive read to and think aloud.</p> <p>Use the recording sheet as the process occurs.</p> <p>Discuss with the participants how this process uses our knowledge of before, during and after reading strategies.</p> <p>Participants reflect on learning and how it will be used in the future</p>
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7	GOAL	Teaching Strategy	Learning Activity
	<p>For participants to use their 'toolkit' strategies in a less contrived reading situation.</p> <p>For the teacher to observe the students independently activating their strategy knowledge.</p> <p>To enjoy the reading and discussion experience.</p>	<p>Reciprocal reading</p> <p>Explicitly praise independent use of strategies.</p> <p>Ask the 'why' and 'what' questions of the participants ... why did you use that strategy?</p> <p>What does it help you to do or know?</p>	<p>Ask participants what strategy they identified to target in today's reading session. Discuss responses.</p> <p>Revisit the 'roles' of reciprocal reading.</p> <p>Distribute text</p> <p>Use Leader 'cue card' to commence the reciprocal reading session inclusive of assigning roles.</p> <p>Read and respond using the structure of reciprocal reading.</p> <p>Participants reflect on learning and how it will be used in the future.</p>

8	GOAL	Teaching Strategy	Learning Activity
	<p>To revisit the reciprocal reading process with the participants to respond to text.</p> <p>Reduce scaffolding of prompting for use of 'toolkit strategies' through following the cue card.</p> <p>To enjoy the reading and discussion experience.</p>	<p>Reviewing and articulating strategies</p> <p>Reciprocal reading (Leader to participate as group member offering coaching support – You do, I help).</p>	<p>Commence session by asking participants what they think are the most important three strategies they now use and why.</p> <p>Distribute text</p> <p>Ask for a participant to be the 'leader' of today's session supported by the use of the leader cue card.</p> <p>Participants reflect on learning and how it will be used in the future.</p>

9	GOAL	Teaching Strategy	Learning Activity
	<p>To promote participants independent action of 'toolkit strategies' during reading sessions through reduction of</p>	<p>Visualising</p> <p>Reciprocal reading (Leader to participate as group member offering coaching</p>	<p>Instruct participants to 'make a picture – visualise' themselves as an active reader and the strategies that will support them to do this.</p> <p>Ask for a participant to be the 'leader' of today's session</p>

	verbal direction. To enjoy the reading and discussion experience.	support- You do, I help).	supported by the use of the leader cue card. Distribute text Participate in Reciprocal reading session Participants reflect on learning and how it will be used in the future.
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10	GOAL	Teaching Strategy	Learning Activity
	For the group to run their own Reciprocal Reading session demonstrating independent knowledge and use of 'toolkit strategies'. Celebrate our reading!	Discussion Reciprocal reading Reflection	Participants to articulate what the roles are of reciprocal reading and how they support reading understanding. Discuss as a group. Ask for a participant to be the 'leader' of today's session supported by the use of the leader cue card. Distribute text Participate in Reciprocal reading session. Participants reflect on learning and how it will be used in the future.

All intervention participants attended all ten sessions.

The control group continued working within the Classroom setting and participated in Literacy sessions that incorporated whole, small, whole instruction and did not experience 'intervention' sessions.

Results

The results support the hypothesis that explicit instruction of metacognitive strategies (before, during and after reading) of 'at risk' Grade 1 students support development of reading comprehension, interpretation of text and the reader's self-efficacy.

Smolkin and Donovan (2001) found that reading comprehension explicit instruction should commence as early as possible. It would be pertinent to note that the Intervention Participants were in the early years of schooling and participants

improved in all measured outcomes and this would support the hypothesis and the noted research of Smolkin and Donovan (2001).

Result discussion is separated into the assessments administered to both the intervention and the control groups in order to support comparison and evaluation.

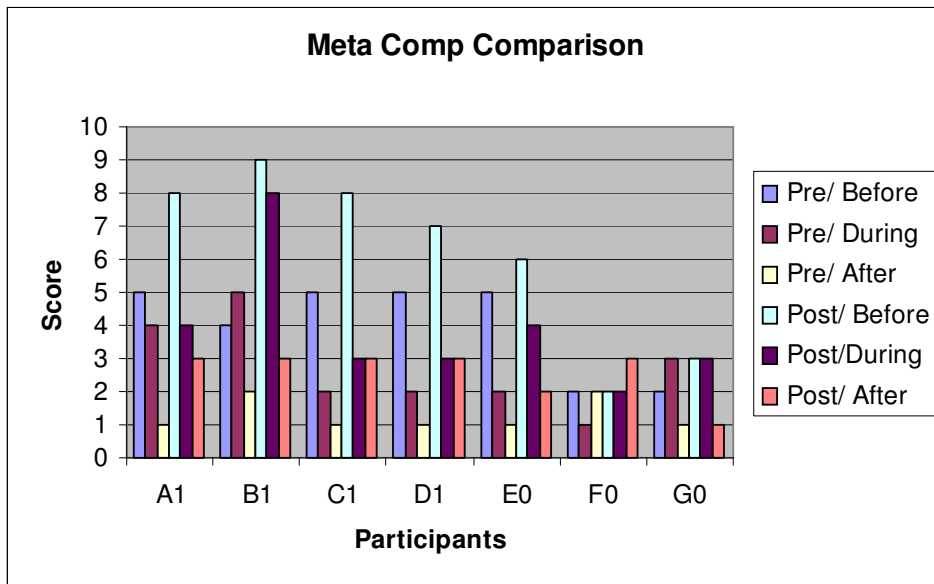


Figure 1: Intervention and Control Groups Pre and Post Metacomprehension Strategy Index Scores.

Figure 1 shows growth in knowledge of strategies of ‘before, during and after’ reading using The Meta Comprehension Strategy Index Questionnaire. The results indicate an upward trend for five of the seven participants in the knowledge of strategy use, before, during and after reading. Student B1 demonstrated significant growth in strategy knowledge across three stages of reading. Comparison between the intervention and control participants at pre testing demonstrated that as a collective the intervention participants exhibited a higher degree of knowledge of the strategies at the three stages of reading.

Significant gains were demonstrated for the four intervention participants at post testing; with it noted that before reading strategies improved two to four positive question responses.

Responses made to ‘during reading’ statements demonstrated the least growth by the four intervention participants and this will be explored in the discussion.

It is interesting to note that the control group had little increase in acquired knowledge of metacognitive strategies for the three stages of reading. Participant E0 in the control group at pretesting had like results to the participants in the intervention group but did not demonstrate the same significant gains. Results would indicate that the explicit teaching of metacognitive strategies associated with before, during and after reading has had a positive effect on the Intervention group.

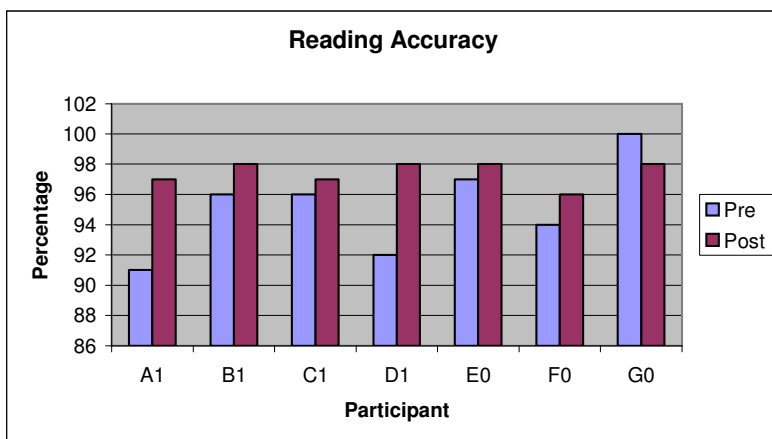


Figure 2 Reading Accuracy Scores of Probe Text – The Gift (Fiction) designated at age appropriate level of 6.5 – 7.5

Figure 2 shows that the reading accuracy scores of an unseen text at Pre assessment increased for participants in both the Intervention and Control group at Post test.

Participant G0 was an exception and declined in reading accuracy score from 100% to 98%. However, more significantly Participant A1 and D1 have increased their accuracy levels from 91% and 92% respectively to 97% and 98% on age appropriate and seen text. For student A1 and D1 it meant that the reading moved from an instructional text level to an easy text level.

It could be stated that explicit exposure to the use of metacognitive strategies supported the increase in reading accuracy in turn supporting reading comprehension as seen in Figure 3 below.

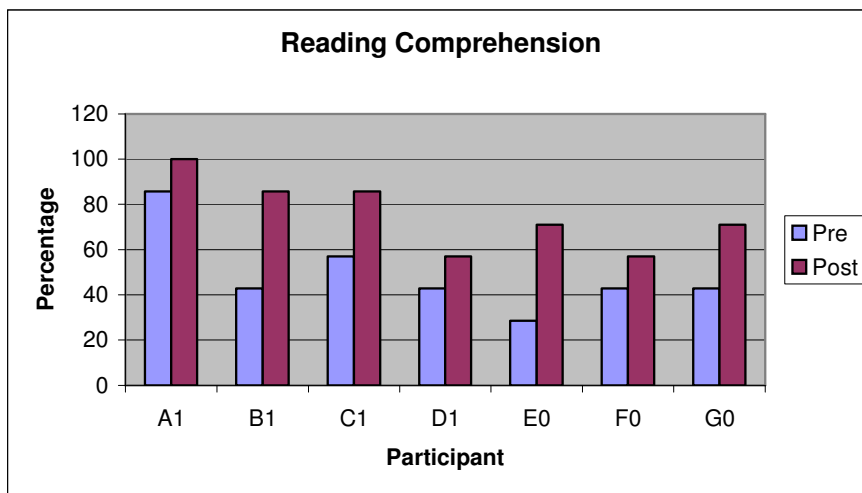


Figure 3 Reading Comprehension Scores of Probe Text – The Gift (Fiction) designated at age appropriate level of 6.5 – 7.5

Intervention participants, Student A1, B1 and C1 made significant gains in Reading Comprehension. Student D1 demonstrated a smaller gain of approximately 14.3% equivalent to the correct response to one question. All participants demonstrated gains in each of the questioning and response areas of Reorganisation, Evaluation, Literal, and Inferential. (Refer to Appendix H Table 1)

Reading comprehension for the Control group also showed gains in scoring. Student E0 made the significant gain, adding 42.5% to the post test score. The same text and

questions were used for both pre and post testing and this could be considered a variable to be factored into validity of results for this assessment.

Table 3
Standardised Test Scores for Intervention and Control Participants for Neale Analysis of Reading Ability - Accuracy

Neale Analysis of Reading Ability – Standardised Test								
Accuracy								
Participant	RAW PRE	RAW POST	Percentile PRE	Percentile POST	Stanine PRE	Stanine POST	Reading Age PRE	Reading Age POST
A1	23	25	39	49	4	5	6.9	7.1
B1	25	26	42	53	5	5	6.11	7.2
C1	28	24	49	47	5	5	7.1	7.1
D1	23	25	39	49	4	5	6.9	7.1
E0	23	26	39	53	4	5	6.9	7.2
F0	24	25	41	49	5	5	6.10	7.1
G0	24	26	41	53	4	5	6.10	7.2

All participants, with the exception of Participant C1, demonstrated growth in Reading Accuracy. Participant C1 Post raw score decreased by four which equates to an error. All participants are in the appropriate reading age range.

Table 4
Standardised Test Scores for Intervention and Control Participants for Neale Analysis of Reading Ability – Comprehension

Neale Analysis of Reading Ability – Standardised Test								
Comprehension								
Participant	RAW PRE	RAW POST	Percentile PRE	Percentile POST	Stanine PRE	Stanine POST	Reading Age PRE	Reading Age POST
A1	8	10	34	53	4	5	6.9	7.1
B1	7	9	30	47	4	5	6.7	7.2
C1	7	9	30	47	4	5	6.7	7.2
D1	6	8	27	40	4	5	6.7	7.0
E0	7	9	30	47	4	5	6.7	7.2
F0	6	8	27	40	4	5	6.7	7.0
G0	6	8	27	40	4	5	6.7	7.0

Intervention and Control group participants increased their comprehension raw score which in turn increased all participants post stanine by 1. This is a significant gain for the time duration of the intervention.

Table 5
Standardised Test Scores for Intervention and Control Participants for Neale Analysis of Reading Ability - Rate

Neale Analysis of Reading Ability – Standardised Test								
Rate								
Participant	RAW PRE	RAW POST	Percentile PRE	Percentile POST	Stanine PRE	Stanine POST	Reading Age PRE	Reading Age POST
A1	24	32	28	41	4	5	6.3	6.11
B1	25	30	29	36	4	4	6.4	6.10
C1	23	30	27	36	4	4	6.3	6.10
D1	24	30	28	36	4	4	6.3	6.10
E0	23	30	27	36	4	4	6.3	6.10
F0	24	32	28	41	4	5	6.3	6.11
G0	23	31	27	38	4	4	6.3	6.11

Rate of Reading demonstrated significant gains for participants in both the Intervention and Control groups.

N.B. See Discussion

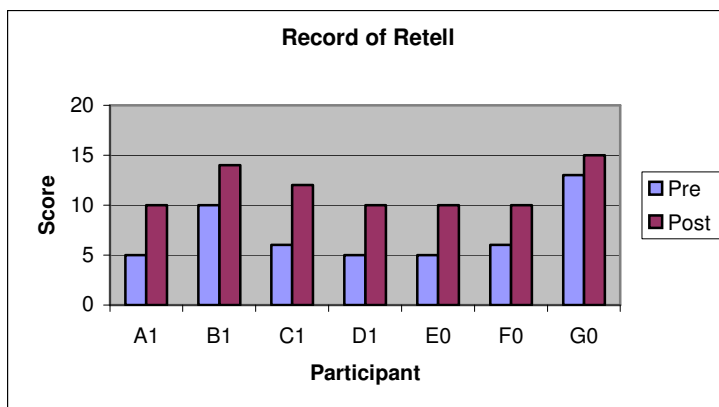


Figure 4 Individual Record of Listening Comprehension Retell Pre and Post

Figure 4 displays the intervention improved all participants ability to recall and retell a sequence of events from a narrative text.

Both Intervention and Control group participants with the exception of participant G0 made significant gains of an extra four to six correct responses. It is noted that participant G0 at pre testing scored significantly higher than all other participants.

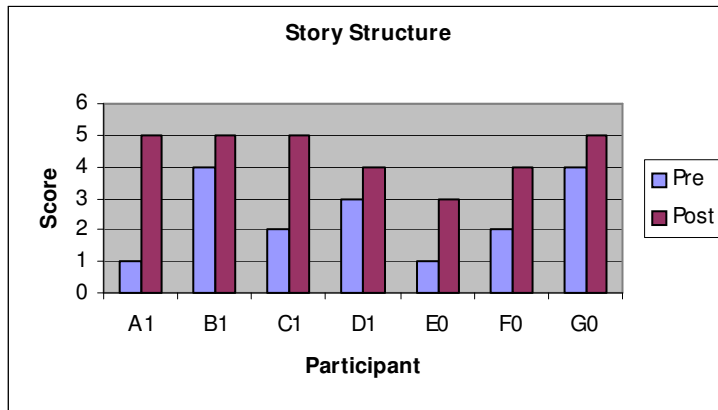


Figure 5 Individual Record of Story Structure Retell Pre and Post Assessment.

Figure 5 can be seen to display evidence of improved outcomes. Both the Intervention and Control participants demonstrated improved scores in the post assessment for use of story structure in the retell component of the assessment.

Participant A1 demonstrated the most significant improvement in the ability to retell a story with correct structure moving from a score of 1 to a score of 5. C1 also demonstrated significant gains that support a growth in ‘thinking’ about the story.

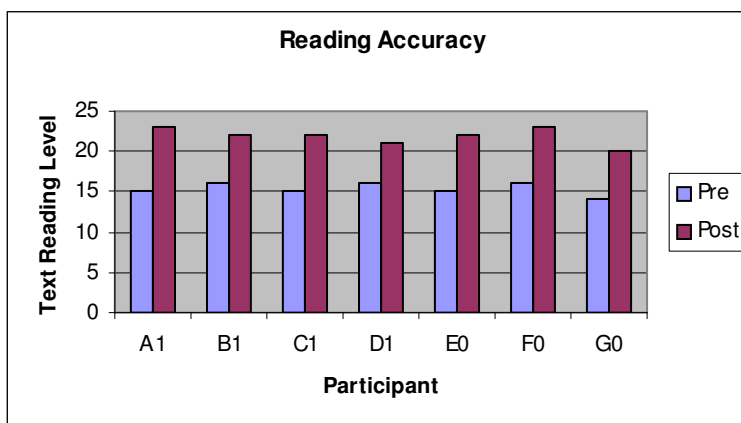


Figure 6 Pre and Post Reading Accuracy Assessment Results using Alpha Assess Reading Texts.

All participants demonstrated significant gains in Reading accuracy over the five week period of pre and post testing. Participants showed an increase of four to five text levels.

All but Student G0 from the Control group has now reached the C.E.O.M. Target Reading Benchmark of Level 20 for Grade 1.

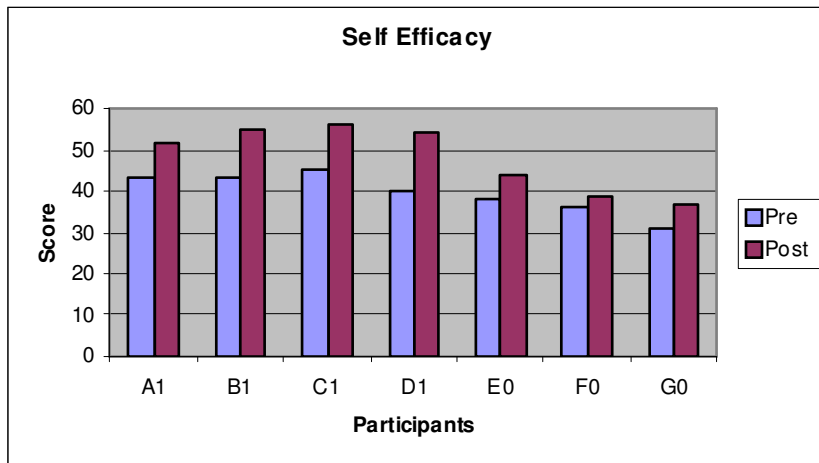


Figure 7 Overall Pre and Post Self Efficacy Scores Part A

Responding to the Self Efficacy Questionnaire (Munro, 2006) participants in both the Intervention and Control Groups demonstrated growth in responding positively to the belief of being able to manage tasks within reading in the Post test questioning.

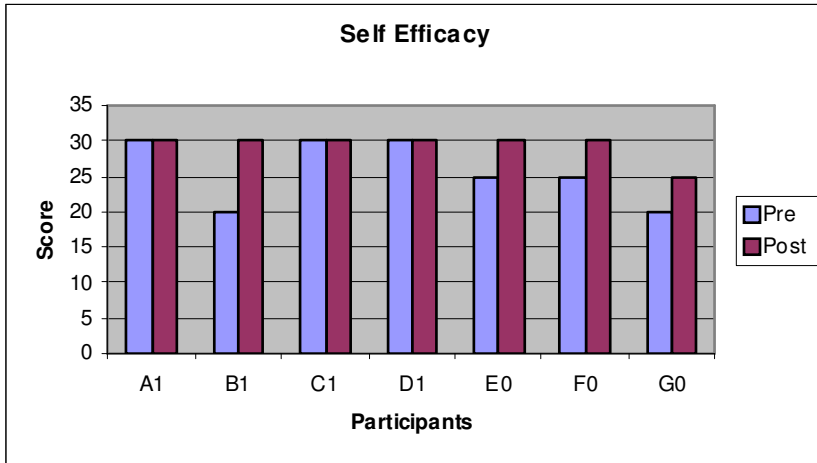


Figure 8. Overall Pre and Post testing results for Self Efficacy Scores Part B

As evidenced in Figure 8, the scores from the Pre and Post testing indicate that both the Intervention and Control group participants have established and maintained a high knowledge of pro- active reading strategies. Three of the four Intervention group students scored full marks at Pre and Post test assessment times. Participant B1 responded more pro actively in the Post test responses, scoring full marks at Post test. The three participants in the Control group also showed a gain of one extra proactive response over time.

Discussion

The results of the current study support the hypothesis that explicit teachings of metacognitive strategies for before, during and after reading enhance participant's growth in comprehension of text and self efficacy.

It should be noted that although the current study was of short duration, evidence verifies that there were positive gains made. Comprehension of text improved when metacognitive strategies became automatized as self –talk scripts. This is a reflection

of wider research. The results concur with Clay (1993), Beckman (2002) Munro (2006), Brown, Pressley, VanMeter, & Schuder, 1996: Vaughn, Chard, Bryant, & Pedrotty, 2000: Sowell 2002 who all advocate that educators need to guide and explicitly teach strategies that facilitate students developing self extending systems to enable participants to become strategic and successful readers.

Alvermann, Swafford & Montero (2004); Keene & Zimmerman, (2007) state that metacognition is not exclusively developmental and that through explicit teaching it can be improved.

The development and structure of the ten intervention sessions utilised teaching and learning models of Pearson and Gallagher (1983), Collins (1989), Munro (2010) and supported scaffolding of participants to accept transference of responsibility for self activating metacognitive strategies when, where and how they were needed at a given point in time. Gains were assessed through utilisation of Pre and Post testing of the intervention participants and the control participants and then comparison and evaluation of data was conducted. Competencies and outcomes altered in reading accuracy and comprehension. Raised competency levels supported raised self efficacy of the participants.

Through observation it became apparent that the structures of the teaching sessions were successful and facilitated participant comfort, involvement and willingness to participate. There was evidence of change within the participants, positive body language and demeanour as well as mental engagement was noted.

In response to concern expressed by two parents that participants would be missing other learning, it decided that as often as possible these sessions would be taken during the Literacy block in order to minimise disruption to other curriculum teaching and learning. This procedure was altered on three occasions. The series of ten teaching sessions were planned to take place over a two and half week period, each being of 45 minutes duration.

A variation to the planned ten teaching sessions occurred at the fifth session where the teacher decided to complete an observation session to ascertain if the participants were actively engaging in the use of the taught strategies. The teacher needed to be aware that teaching was responsive to where the group was situated in their learning continuum and how the next four lessons would best meet the learner's needs.

Observations were noted.

Intervention and Control participants demonstrated significant gains in Reading Accuracy, with the slight decrease of Participant G0 as shown in Figure 2 and Table 1. All but Participant G0 (Control Group) have now reached the C.E.O.M Target reading benchmark of Level 20 for Post Grade 1. The gains may be assigned to maturation, a normal course of outcome over time however the current study puts forward that there is support of data to correlate the improvement in reading accuracy and reading comprehension with the participants increased awareness of metacognitive strategies before, during and after reading as indicated by Figure 1 and Appendix H Table 2 showing significant gains for the Intervention participants in particular. This certainly is supported by understandings of Munro's Multiple Levels of Text Processing Model (Munro, 2010) and the belief that when no one level needs

more attention than another the reader is able to integrate all knowledge to establish understanding.

The demonstrated gains made by all participants, both Intervention and Control, in the Neale Analysis of Reading Ability: Accuracy, Comprehension and Reading Rate are significant. It is noted that the same structure is applied in Form 1 and Form 2.

The second thing to note is that the participants read and responded to Text 1 and Text 2 and did not complete Text 3 well enough to be scored.

Both intervention and control group participants' demonstrated gains in the Listening Comprehension assessment in both retell and story structure. The intervention participants demonstrated higher gains as they had explicitly been taught and practiced thinking of text in before, during and after reading actions. There appears to be a link between the transference of strategy use between reading comprehension and listening comprehension. Fountas and Pinnell (2006) speak of the transfer of knowledge to other texts and the data of the listening comprehension retell is supportive of this.

The extent to which the participants had internalised the metacognitive strategies is highlighted in the data results of the post assessment of the Metacomprehension Strategy Index (Figure 1, Appendix 2, 3 & 4). The upward trend was across both groups of participants. The intervention group had been explicitly taught how to use the metacognitive strategies in authentic reading situations using a variety of teaching and learning strategies. This supported the transference of use to listening comprehension as well as reading comprehension.

It is noted that 'during strategies' were the least successfully internalised for the intervention participants. However, it was noted that although the teaching sessions incorporated strategy learning that was considered to be at the participants zone of proximal development the 'during reading' strategies may have been at the upper level and not sustainable at this time. The increase in difference between pre and post assessment scores was minimal with the exception of participant B1 who improved the post score by 3. A consideration would be that more specific teaching of paraphrasing and questioning would be supportive of development of metacognitive strategies for 'during reading'.

Qualitative data analysis indicates participants in the intervention group began to use the strategy of Meta language and exhibited collaborative support to use the shared language. The format of the sessions allowed for natural dialogue and as the sessions progressed the strategy Meta language became independently inclusive.

The results of the current study in the area of self efficacy using the Self Efficacy Scale as used in Intervention program ERIK verify that growth in knowledge and use of metacognitive strategies raises participants self efficacy. All participants exhibited a higher belief and assuredness that they could 'have a go' at tasks.

It can be noted that participants in the Intervention group commenced at a slightly higher level of positive response at the Pre test stage. But it must be stated that the Intervention group also showed larger gains in their positive response scores and

these scores show a positive move towards participants displaying positive self efficacy.

Section B of the Self Efficacy assessment showed that all participants would have been exposed to the language of the response statements

E.g. read on, go on reading, read it again etc in classroom settings and this added support for the impact of 'shared language'. The data is indicative of positive knowledge of strategy use and supported enhancement of 'can't do beliefs and actions into 'I believe I can' through self regulation of metacognitive strategies.

A noted limitation of the action research project is the duration of the Intervention.

Questions remain as to whether these participants will independently maintain the use of these strategies. Secondly have the participants had enough experience with the strategies to effect transfer of knowledge in various settings. It would be suggested that sessions for revisiting the learning may need to be included into the research action project.

Further investigation would be valuable in looking at whether explicit teaching of metacognitive strategies would be beneficial to be taught along side decoding of text at an earlier stage in a child's schooling in order to inhibit the 'barking at print' syndrome.

NB: Stemming from an ethical and moral perspective the ten intervention sessions will be taught to the control group.

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