

Reciprocal Teaching: An Implementation Case

Julia Westera, PhD, Honorary Academic, University of Auckland. This research was requested by Dr Adrienne Alton-Lee in 2014, on behalf of the Iterative Best Evidence Synthesis Programme | Hei Kete Raukura. Wellington: Ministry of Education.

ABSTRACT

The purpose of this case study was to identify factors that would be critical for success when implementing reciprocal teaching as an effective school-wide strategy in New Zealand.

In common with many other evidence-based programmes, reciprocal teaching has a history of poor implementation. To overcome this, and for sustainable impact, a multi-pronged, multi-phase implementation is suggested (Westera, 2014b). This includes an intensive coaching phase, a core teaching and learning phase, and an inclusive school-wide phase.

This study focused on the intensive coaching phase. Participants were 124 students in five Year 4 to 6 classes, 6 teachers and 1 teacher aide in a multicultural decile 3 primary school.

After the brief intensive coaching intervention, all students reading above 6.06 age equivalent level, irrespective of age, ethnicity, gender and reading comprehension level, showed a significant improvement on comprehension scores, with the majority scoring significant progress on both reading comprehension and accuracy scores. This finding is consistent with previous research (LeFevre et al, 2003; Westera, 2002) and aligns with the self-teaching hypothesis of Share (1995). As also noted in previous studies (Gilroy & Moore, 1998; Smith, Timperley & Francis, 2011), Pasifika students achieved exceptionally well. Further, younger year 4 students continued to maintain a higher rate of progress than year 6 students.

Several critical success factors emerged from this study, one being a trained and skilled lead teacher and team, a second being the quality and format of the intensive coaching. The support of an expert facilitator/coach was also identified by principals as critical to the success of the sustainability of reciprocal teaching in a school.

A priority for further research and development of reciprocal teaching as a multipurpose inclusive strategy would include investigating longitudinal implementation in schools and kura, with a view to maximising the potential of reciprocal teaching more broadly and deeply across schools and all year levels, curriculum areas and key competencies.

RECIPROCAL TEACHING

BES Exemplar 4: Reciprocal teaching (Alton-Lee, Westera & Diggins, 2012)¹, features an evidence based approach that is an exceptional fit with the BES goal of ‘making a bigger difference across multiple valued outcomes for diverse (all) learners while accelerating progress for students who are under-achieving’.

Reciprocal teaching aligns with the goals of the New Zealand Curriculum / Te Marautanga o Aotearoa, Ka Hikitia, Pasifika Education Plan, and the ‘Success for All’ inclusive education policy, as

¹ https://www.educationcounts.govt.nz/_data/assets/pdf_file/0017/107108/BES-Exemplar4.pdf

well as Te Kotahitanga, the teaching as inquiry approach, collaborative learning, SOLO Taxonomy with surface, deep and conceptual understanding (Biggs & Collis, 1982), digital learning, ‘modern learning environments’ and Positive Behaviour for Learning (PB4L).

Further, reciprocal teaching can be a catalyst for a school-wide shift towards inclusive and effective pedagogy, collaborative school cultures, and valuing ako (reciprocal relationships).

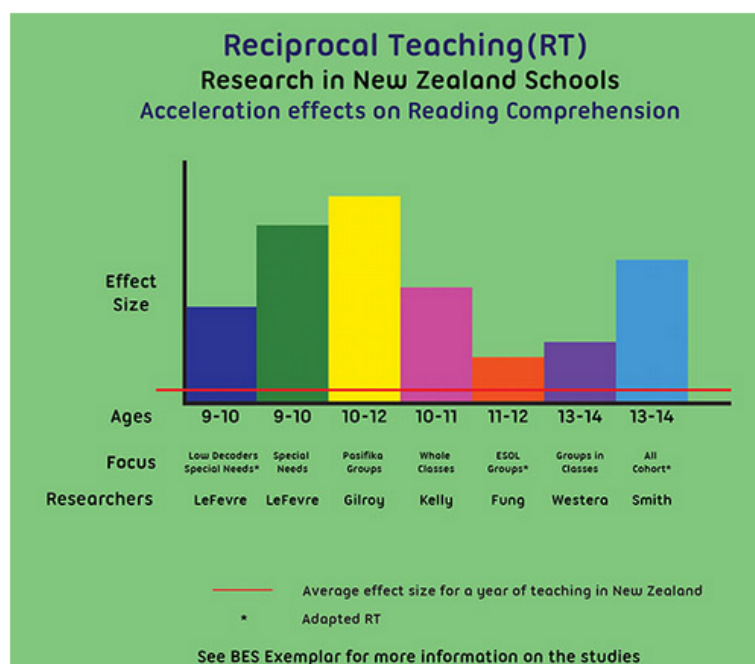
In this case study we investigate the implementation of reciprocal teaching as an effective school-wide strategy for priority learner groups in a low decile multicultural school.

Significance of the Work

Originally developed by world-leading applied researchers in educational and cognitive psychology (Palincsar & Brown, 1984), reciprocal teaching is regaining attention both internationally and in New Zealand.

One reason for this is that reciprocal teaching ranked as third out of the 49 most effective teaching strategies identified by Professor John Hattie in his book, *Visible Learning* (2009).

A second reason is that the recently published BES Exemplar 4 highlights that Reciprocal Teaching can accelerate literacy achievement in a relatively short period of time while building deeper (higher order) thinking and collaborative skills for priority learner groups (Alton-Lee, Westera & Diggins, 2012). This Exemplar draws from six highly effective implementations in New Zealand primary, intermediate and secondary schools. The bar graph (below) shows the results of these studies and compares them with ‘business as usual’ – the red line represents the average effect size for a year of teaching in New Zealand. The graph shows how effective reciprocal teaching can be with a wide range of students.



Most impressive are the results of an intensive coaching adaptation of reciprocal teaching (Smith, Timperley & Francis, 2011), which can result in very significant gains in literacy and higher order thinking skills. This study involved over 1400 year 9 students in seven multicultural secondary schools. All students made these gains, irrespective of prior achievement, gender or ethnicity.

Further, Exemplar 4 has brought to the fore research demonstrating that reciprocal teaching can be a catalyst for high impact school-wide improvement on a large scale, in both primary and secondary schools (Smith, Timperley, & Francis, 2011; Westera, 2002).

Overview

Reciprocal teaching is a package of strategies that increases the ability of students to access and understand what they are reading, particularly challenging text. It can also be used for small-group collaborative investigation. It involves four thinking strategies: clarifying, questioning, summarising, and predicting, as well as ‘thinking about thinking’ strategies (metacognitive instruction).

The teacher explicitly coaches small groups of students in these four strategies while they are immersed in a collaborative routine. This involves each student taking a turn at leadership of the group and in sharing responsibility for understanding the text they are reading together.

Students may quickly become self-managing in this discussion group. However, reciprocal teaching is most effective if the teacher or tutor is sufficiently skilled to continue to scaffold the learning of the four strategies while providing repeated opportunities for deepening understanding and practice with increasingly challenging text or tasks.

Reciprocal teaching is not just for reading, it is a multipurpose tool that has wide applicability across all curriculum areas and all key competencies (Westera, 2014a). Students become more focused, self-managing and proactive learners with enhanced participatory, oral language, face-to-face (kanohi ki te kanohi), social, problem solving, collaborative reasoning, teamwork and leadership skills. Arguably, life skills learnt through reciprocal teaching are central to success throughout school and tertiary education, work, and for lifelong learning.

Implementation with impact

Given our national goals for priority learners, a robust intervention that markedly accelerates improvement within an atypically short period and is valued by teachers presents a valuable policy opportunity. But to realise such an opportunity attention must be paid to getting it right on the ground. This means that set-up and implementation must be deeply theory-driven, informed by understandings and practices based on ‘implementation science’.

Barriers to using implementation science effectively to inform change include poor funding, a short-term reactive environment for innovation, lack of mechanisms for refining practitioner knowledge into a professional knowledge base, insufficient involvement by school-based leaders, and failure to build relational trust.

(<https://www.educationcounts.govt.nz/publications/series/2515/60170>; Robinson, Hohepa & Lloyd, 2009).

Reciprocal teaching as a school-wide, inclusive strategy can be categorised as a ‘complex intervention’ (Blasé, Van Dyke, Fixsen & Bailey, 2012) because it demonstrates five dimensions of complexity and several development phases in a larger school (Westera, 2014b). This is similar to other robust evidence-based programmes, such as Positive Behaviour for Learning (PB4L).

To have impact, any implementation research needs to attend to the complexity of the educational and cultural context as well as the integrity of adaptations, and to logistics and practical issues (Blasé et al, 2012).

Similarly, for ‘substantive impact’, teacher education needs to have rigour and be applied in regular teaching and natural settings. Conditions identified in the Teacher Professional Learning and Development BES (Timperley, Wilson, Barrar & Fung, 2007) as critical to success include theoretically oriented content, addressing dissonance, activities that translate theory into practice, and multiple

opportunities to revisit and refine new knowledge and practice in classrooms and wider settings over an extended period of time, all within the context of a professional learning community.

As a complex form of metacognitive instruction, reciprocal teaching involves teachers taking on a coaching role, with both teachers and students puzzling over problems and materials as they develop deeper understanding of content and build their coping and analytical thinking skills. To learn complex thinking skills, teachers and students both require frequent, deep and flexible cognitive support and coaching. A parallel can be seen in rugby. To become an effective rugby coach you need not only to be able to play the game, but also to have the skills and motivation to build players' physical, strategic, and team skills, during practice and in matches.

In common with many other evidence-based programmes, reciprocal teaching has a history of poor implementation. This means it is important to analyse the mix of effective and weak practices found in the research literature, our own experience, and online (Alton-Lee, Westera & Diggins, 2012; Westera, 2014b). Pertinent integrity issues are listed in the 'Implementation Alerts' table in Exemplar 4 (p. 17); they also include 'lethal mutations' (Seymour, 2003), 'disconnected' strategy instruction (Palincsar & Schutz, 2011), 'pepper potting' and 'dabbling' (Westera, 2014a). A major issue is that elements that give reciprocal teaching its impact are often lost when teachers are only able to access brief professional learning and development (PLD) (Hacker & Tenent, 2002). PLD for metacognitive strategy instruction or interactive teaching methods requires 'more than one-offs' and 'more than mentioning'.

For faster and sustainable impact, a multi-pronged, multi-phase implementation is suggested (Westera, 2014b).

A three-pronged approach would incorporate reciprocal teaching as a proactive intensive coaching strategy, 'a core teaching and learning strategy' (Westera, 2014a) and an effective school-wide inclusive strategy (Westera, Smith, Frances & Gasson, 2012; Westera, 2002, 2013, 2014b).

A multi-phase implementation would be specific to each school. Phases could be sequential or simultaneous (Westera, 2014b). Phase One would focus on developing a strategic leadership team (as with Te Kotahitanga) that includes the potential lead teacher/s. This team would set up the conditions for successful school-wide implementation (Westera, Smith, Francis & Gasson, 2012; Westera, 2014a, 2014b). This can be done within the PLD context and through the use of an intensive coaching format with a priority hub of teachers and classes. Phase Two would involve deliberately transferring reciprocal teaching beyond reading groups into cross-curricular teaching-as-usual and life skills. Phase Three would focus on developing a sustainable school-wide strategy (Westera et al, 2013; Westera 2014b) and Phase Four on clusters of schools integrating reciprocal teaching in ways that achieve the greatest impact for all their students. Where reciprocal teaching has failed to have the hoped-for impact, the primary cause has most likely been a failure to effectively implement Phase One, thereby short circuiting collaborative momentum and robust development in Phases Two and Three.

A review of implementations that have demonstrated substantial achievement gains for priority students reveals several critical success factors.

One is a trained and skilled lead teacher (and team). Research into long-term implementations (Hacker & Tenent, 2002) underlines the importance of teacher understanding, and understanding comes from repeated opportunities to learn and practice, plus ongoing feedback from colleagues knowledgeable about reciprocal teaching and the school context. The format of the intensive coaching is also critical. The best results are associated with 15 or more brief (20–35 minutes) small-group sessions led by a trained and skilled team and compressed into just 4–5 weeks.

It is worth noting that some teachers learn to use reciprocal teaching in their classrooms independent of a wider school strategy. But if they have many students with low levels of language and literacy, their best 'going it alone' efforts may not be enough to effectively coach them in these

new ways of learning. Also, one lone teacher practising reciprocal teaching may not be a sufficient catalyst for a high impact, school-wide strategy.

THE CURRENT STUDY

In this case study, Phase One was implemented collaboratively by a teaching team with their year 4–6 students in a low decile multicultural primary school with a high proportion of Pasifika students. Due to constraints such as the abrupt start and the short-term nature of the contract it was not possible to go on to develop a school-wide reciprocal teaching strategy.

Phase One – the intensive coaching strategy – is the most costly in terms of PLD, time, staffing, support, effort, resources and expert facilitation, but it is here that collaborative and responsive strategic planning begins and that the foundations for Phases Two and Three are laid.

Achievement outcomes from the intervention will be discussed and compared with previous New Zealand research with similar student groups, bearing in mind Hattie’s estimate that an effect size of 0.35 represents a year’s gain in achievement. Enablers and challenges will be identified, together with implications for further research.

CONTEXT

The multicultural primary school in which this study is situated is a decile 3 school with about 300 students from 17 nationalities, including about 50% Pasifika, 21% New Zealand European, 12% Māori and 12% Asian. For one third of these students, English is their second language. Absenteeism rates are 6–10%.

This case study was initiated for the purpose of identifying factors that would be critical for success when implementing reciprocal teaching in a New Zealand context. The inquiry approach was designed specifically to inform policy decision making. For example, we needed to be able to answer such questions as: How does this intervention work for schools in a context of many competing pressures? How can we support teachers to use a high impact intervention that requires them to change their practice? What issues are there at the interface between the ongoing programme and other interventions? How can we support schools and teachers to build the capabilities that will enable them to accelerate genuine progress across policy goals for priority (and other) learners? Further work is planned to determine what support schools need to embed the new practice so that it is self-sustaining and enables ongoing improvement. The researcher, whose expertise in implementation has attracted international recognition², played an ‘expert facilitator’ role in the study, with a school-wide capability-building role.

The school’s principal offered the school for the study, with the focus being a team of teachers in the senior syndicate. The members of this team described their situation as follows:

“The Te Rangi team are five teachers of years 4 to 6 students. We have a variety of cultural backgrounds and our teaching experience ranges from 2 to over 30 years. We are a supportive and collaborative team who work well together. Our school-wide professional development allows each of our three teams to choose areas of inquiry. Our team’s PD focus for 2014 is reading comprehension, as we had identified this as an area of need for our students. When the opportunity arose to participate in reciprocal teaching we saw the relevance to our PD as we were already on this pathway and had done work around different comprehension strategies. Some teachers had already

² See doctoral thesis: <https://researchspace.auckland.ac.nz/handle/2292/767>

Westera’s thesis was one of five US and international studies to be accepted for inclusion in the What Works Clearinghouse’s review of reciprocal teaching: https://ies.ed.gov/ncee/wwc/Docs/InterventionReports/wwc_rec_teach_091410.pdf
Invited to the UK to speak re implementation science.

taught reciprocal reading so were familiar with the approach. The programme was started with two lead teachers who kept the other teachers informed of their progress. After six weeks the other three teachers were keen to commit to the programme.”

METHOD

Participants, Setting, Procedure and Support

Five Year 4 to 6 classes participated, comprising 124 students over the duration of the study. For their characteristics, see Table 1.

In addition to the five regular class teachers, an extra teacher aide and teacher were employed for the programme. The intervention was initiated in two classes, and then in three further classes. Group One comprised two class teachers and an additional teacher aide. Group Two, comprising three class teachers plus an experienced teacher who spent an hour in classrooms before lunch, joined the intervention when additional funding became available. Of the 22 reciprocal teaching groups in these classes, 16 were led by the classroom teacher or the additional experienced teacher, and six were led by a teacher aide. Group size varied from 3 to 7 students. The participating teachers completed 20 reciprocal teaching sessions, each of 20–35 minutes, over a period of about 5 weeks.

The staged introduction of the programme meant that the two teachers in Group One introduced reciprocal teaching to their students four weeks before the three teachers in Group Two. Although a consequence of initial funding constraints, the phasing of the resource did allow more experienced staff to support colleagues proactively with their Teacher Learning Community Inquiry and with in-class observation and feedback.

Sessions were incorporated into the regular reading/language programme at a defined period (before lunch) four days a week in each of the five classes. While half the class was engaged with group work the remainder continued with their usual programme, typically consisting of follow-up activities within the regular ‘tumble’ schedule.

An action plan developed by the teaching team and expert facilitator had links to senior management, who provided support during assessment and throughout the implementation.

PLD sessions involved small-group, inquiry-based dialogue, in which several critical areas of dissonance were raised. Activities included whiteboard/PowerPoint presentations/mini-lectures, walk-through and practice sessions, and operational handbook. Topics included pre-planning about scheduling, grouping, choosing topics, culturally aligned reading materials, alignment with class and group expectations, and individualised adaptations for low decoders and students with special needs.

The facilitator provided meaningful explanation and demonstration in a modelling and coaching role with teachers and identified lead students from one or two classes (at a time), using the fishbowl technique and culturally aligned picture, verbal and nonverbal prompts, and tuakana/teina participation routines with high interest reading materials. The facilitator followed up with visits to each classroom, daily at first and then at intervals as needed, to provide coaching, assist with programme adaptation, feedback and feed forward, and observe integrity components.

Design

We employed a within-subject design, using pre- and post-tests on two measures to obtain programme outcome data, using effect sizes and subgroupings that align with prior research on reciprocal teaching and reading comprehension instruction (Klingner & Vaughn, 1996; LeFevre et al,

2003; Palincsar & Brown, 1983; Smith, Timperley, & Francis, 2011; Westera, 2002; Westera & Moore, 1995) for comparison and validation purposes.

Information relevant to implementation effectiveness, integrity, alignment and feasibility was also obtained from teacher and student surveys. This was integrated with the ethnographic data acquired during the collaborative setting up and implementation, which occurred over about 10 weeks. Ongoing, collaborative development occurred through PLD, professional learning groups (PLGs) and meetings with staff and school leaders before, during and after the implementation in classrooms, and feedback and feed forward in situ while setting up, co-teaching, and maximising inquiry learning. Weekly records of actions (maintained during the study) plus responses by participants to the results and early drafts of the report supported cross validation.

Measures

Two pre-test measures were completed within one week of the start of the reciprocal teaching sessions. Post-testing for Group One was completed six or so weeks after the conclusion of the programme, and for Group Two, within one week after the conclusion.

Achievement testing

Students were assessed before and after the reciprocal teaching programme on either the Neale Analysis of Reading Ability (Revised Australian Edition, 1999) and/or e-asTTle, available online (<https://e-asttle.tki.org.nz/>).

The e-asTTle was administered as a class test to all students scoring above seven years at pre-test on Neale accuracy, whereas the Neale was administered individually to all students in Group One (two classes), but only to those scoring below nine years on running records in Group Two (the other three classes), due to time and staffing constraints.

The Neale is a standardised test that provides both reading comprehension and accuracy scores. Students read prose passages aloud and answer comprehension questions on each. The two parallel forms (1 and 2) each contain six graded passages and locate the student on a continuous reading scale. Stability coefficients between Forms 1 and 2 are .95 and .98 for comprehension and accuracy respectively. Internal consistency coefficients of reliability (KR20) for Forms 1 and 2 are .90 and .89 respectively for comprehension and .81 and .83 respectively for accuracy. As most of the students were not familiar with class-administered tests such as e-asTTle, this individualised test was selected to ensure a more optimal testing context and, therefore, more reliable data. Further, the Neale provides data that is relevant for teaching and research purposes, such as student profiles for both accuracy and comprehension. This allowed comparison with other reciprocal teaching studies that have used similar marker variables (Klingner & Vaughn, 1996), including New Zealand studies that use the same measure (Le Fevre et al, 2003, Westera, 2002).

The assessment tool asTTle, which is in common use in New Zealand, was selected because it can provide overall, deep and surface scores. It identifies two major levels of thinking, surface and deep, that are based on the Structure of Observed Learning Outcomes (SOLO) cognitive processing taxonomy. The surface level responses require the understanding of ideas and facts, whereas the deep processes are more cognitively challenging, requiring inference and integration of ideas (Hattie & Brown, 2004). E-asTTle was developed primarily for students in years 5–10 but can be used for students in lower and higher year levels because it assesses curriculum levels 2–6.

Student and teacher surveys

After the intervention the students and teachers completed surveys with rating scales and written responses. The students' survey included 5 and 7 point Likert scale items such as "I liked the stories

we read together very much / ... / not at all”; “I would like to do reciprocal teaching again very much / ... / not at all”; “because of reciprocal teaching, how I feel about friends is much worse / ... / much better”; “because of reciprocal teaching, how I feel about school is much worse / ... / much better”. These questions were selected to explore the students’ wider perspectives and satisfaction with the strategies and the reciprocal teaching programme. The two surveys provided evaluative and formative feedback and allowed for triangulation of data checks.

The Neale was administered by teaching staff; the e-asTTle was administered and recorded by a senior staff member with training in the e-asTTle. For both students and teachers it was the first time they had used this test. Statistical analyses and compilations of survey data were completed by a teacher and a technical assistant independent of this study.

RESULTS AND DISCUSSION

Findings are outlined for pre- and post-test results, and also for the student and teacher surveys.

Achievement testing

Pre- and post-test mean scores, standard deviations and effect sizes for Neale and e-asTTle results are presented in Table 1. Effect sizes were calculated using the ‘within group effect size’ formula (Olejnik & Algina, 2000). The mean post-test score was subtracted from the mean pre-test score on the dependent variable measure, and this number was divided by the square root of the sum of the squared standard deviations of the pre-test and post-test scores. Effect size benchmarks (Cohen, 1992) were based on Hattie (2009): 0.25 for small, 0.30 for medium and 0.60 for large, to allow for comparisons within this study and with other New Zealand studies (a year of teaching has a mean effect size of about 0.35).

These results and some descriptive data are presented in Table 1 and summarised below.

Overall, there was a significant improvement on comprehension scores through this brief intensive coaching intervention for all students reading above 6.06 age equivalent level, irrespective of age, ethnicity, gender and reading comprehension level.

On comprehension (Neale) all students attained a large mean effect size (0.68). Subgroups that achieved remarkably large effect sizes included Pasifika students (0.92), Asian students (1.17), year 6 students (1.14), highest (1.14) and lowest comprehenders (1.09), and girls (.93).

On the e-asTTle all students attained a small mean effect size (0.22) on deeper thinking skills. The e-asTTle is a more stringent test of generalisation, requiring students to focus for 30–40 minutes as they completed a class-administered test without support. Maori students excelled on this test, and made greater gains than other ethnic groups, achieving a medium effect size (0.51) on the deep feature scores (measuring higher order thinking).

The findings are highly consistent with previous New Zealand and other research on reciprocal teaching. Several findings are worthy of further note.

One is that even the highest comprehenders (over Level 3a) in these classes made substantial gains. This is consistent with previous large scale implementations using brief intensive coaching for all year 9 students (Smith, Timperley & Francis, 2011).

A second is that the majority of students made significant progress not only on reading comprehension but also on accuracy, with a medium effect size (0.40) for all students (Neale). Large effect sizes (>0.8) for accuracy were achieved by Asian students (1.13), year 6 students (0.81), lowest decoders (with pre-test scores at 6.06–8.00 age equivalent level) (0.87), and highest comprehenders (0.83). This finding is consistent with previous research (LeFevre et al, 2003; Westera, 2002) but

stronger, and aligns with the self-teaching hypothesis of Share (1995). For weaker readers, reciprocal teaching appears to enable them to capitalise on their strengths as they benefit from the synergy of the group, so that they learn how to learn at their own 'cutting edge'. For some, reciprocal teaching may foster the acquisition of metacognitive and cognitive skills that promote independent comprehension of text at word level, sentence level and idea level. For others, a major effect may be the independent generation of novel words. Weaker readers may also become more active at the metacognitive level, integrating contextual information and/or self-teaching phonological awareness to resolve decoding and/or comprehension ambiguities.

Third, Pasifika students achieved exceptionally well, as has been noted in previous studies (Gilroy & Moore, 1998; Smith, Timperley & Francis, 2011).

Fourth, as can be seen in the tables, year level data show that the younger year 4 students are continuing to maintain a higher rate of progress than year 6 students, a trend that is already being noted in this school.

The data also show that nine of the 12 students with high levels of absenteeism (3 to 12 days) during the programme made significant gains. Note that most staff made adaptations for these students, as for the low decoders.

Student and teacher surveys

Information from the surveys reinforces the positive results and wider benefits for the students. In their responses the students gave their highest ratings to improved reading skills, the usefulness of the four thinking skills, and improved group leadership skills. They also gave high ratings to learning better in a group and greater enjoyment of school. Many could give examples of how they were applying the four strategies in other settings, and as life skills.

All Maori students were positive in their survey responses, making comments such as 'I love reciprocal reading', and comments such as 'I need more help with my summarise', which reflect increased agency.

Teachers provided similar positive feedback, reporting that students were 'keen, enthusiastic'; 'students are gaining self-managing skills as well as thinking skills in reading. This helps with teaching children to work together by communicating appropriately. Once this is sorted then learning will come easily. We are definitely enhancing their comprehension skills and teaching them the skills to uphold meaning in a text'.

Students volunteered that they preferred reciprocal teaching to digital activities, and asked relievers if they could continue with reciprocal teaching even though their regular teacher was absent. It was noticeable to any observer (including relievers, teachers and students) that both staff and students remained highly motivated throughout the programme.

The teachers' beliefs about reciprocal teaching, and their methods, were challenged in the PLD facilitated by the external expert. They developed new understandings based on the evidence and culturally aligned their practice with reciprocal teaching. Teachers commented 'before it was very different and we got very different results'; 'the new way ... is more beneficial and enables more productive dialogue amongst the members of the group'. Throughout Phase One, as they were immersed with students and colleagues in reciprocal teaching, teachers revisited the dissonance created with their existing beliefs and practices, developed new ways of teaching and of working together as a team of reflective practitioners, and showed high levels of commitment and motivation.

Teachers also said that they had learnt to understand and observe their students more deeply, and that they and their students had more opportunities to learn. Students were 'taking more risks as a

non-threatening, risk free culture has been created’ and there were more ‘opportunities to become a leader, opportunities to develop oral language’.

According to several comments from both senior and regular teachers, the results attained were unprecedented in the school in terms of the improvement in test results and the students’ motivation to learn and to participate orally and actively in group work.

There was support for the development of a whole-school approach – from juniors to the senior school – with ‘a seamless progression’ enabling children to gain ‘more and more skills’ and grow ‘more confidently and maturely with the strategies’. In addition, there were suggestions that reciprocal teaching be linked with teaching as inquiry, school appraisal systems, and the core teaching toolkit.

Integrity

Information from student surveys, class observations and teacher reports showed that all students were assuming leadership roles and using the four reciprocal teaching skills within the collaborative group setting. Students participated in 20 sessions with an adult coach over 4 to 5 weeks. Teachers observed each other and the external facilitator completed several observations with feedback for each of the staff involved.

IMPLICATIONS

The intervention significantly accelerated achievement for all learners, for both reading comprehension and accuracy. The coaching required to make these gains was very brief and strategic, totalling 10 hours per group of 5 students (40–50 hours per class) over the course of a year.

There were many other interconnected improvements of practical significance for teachers and students and school-wide strategy development.

First, as reported by both teachers and students, changes in peer culture and teaching practices made for a more focused and motivating learning environment. Environments that create high levels of peer support impact positively on student achievement (Hattie, 2009).

Second, this culturally informed and responsive intervention empowered all involved, teachers and students. This was evident in the fast and motivated uptake, by teachers and students learning together, and in the positive outcomes for both students and teachers. Several teachers were excited that some of their students who had previously been hesitant and silent had not only gained a voice but were also capably leading a group. A contributing factor is that the reciprocal teaching process was adapted in several ways for Māori, Pasifika and ESOL students. Teachers also had the opportunity to coach respectful oral language and conversational skills, to invite students to express a view from their particular cultural perspective, and to make connections via activities, topics, and themes, thereby increasing understanding and engagement and providing a means for sharing and valuing cultural knowledge. Understood as an inclusive practice, reciprocal teaching can shift power relations, language and content in classrooms (Bishop & Glynn, 1999) in ways that give space and voice to minoritised groups, empowering the learner and learning. Reciprocal teaching embodies and honours the concept of *ako*.

Third, the teaching team made significant changes to embed reciprocal teaching in their practice and classrooms, ensuring that it aligned with the curriculum and was inclusive of students with special needs. Teachers were supported to adapt reciprocal teaching for low-achieving and challenging students so that they could participate actively and learn with their peers in group settings. Towards the end of Phase One, teachers were keen to ensure that low-achieving students had more reciprocal teaching, that students maintained reciprocal teaching practices when working in groups, and that

next year's year 4 students learned reciprocal teaching early on – in this way laying an early foundation for effective reading, thinking, metacognitive and social skills, and for learning in self-managing groups.

Successful and proactive inclusion relies on teachers having the knowledge, skills, time and resources to support equitable outcomes for all learners.

This study showed that even competent and experienced primary school teachers who were part of a dynamic team needed to update their knowledge of reciprocal teaching and be equipped (through interactive PLD and additional teacher time) to learn about its complexities and orchestration. Less receptive teachers, teachers who find it difficult to integrate new practices in the classroom, and those who have difficulty with classroom or group management will need extended and/or different support.

Fourth, this study demonstrates that reciprocal teaching, implemented with integrity, can provide teachers with many opportunities to establish an environment characterised by *ako*, *tuakana teina* and relational trust, where students have time and opportunity to develop effective learning relationships with teacher and peers. In such an environment teachers can address in timely fashion any beliefs that are unhelpful or even harmful. For instance, teachers reported being able to address racism, sexism and other prejudicial attitudes during intimate group time and to strengthen respectful and vibrant relationships in conjunction with focused learning and group conversations.

Fifth, this study supports the finding from earlier studies (Carter, 1997) that, implemented school-wide, reciprocal teaching can prevent deterioration in achievement and attitude during the primary school years (a trend that was already evident in the study group and which is of wide concern, not just for this school). Reciprocal teaching may well be optimised to inoculate against disengagement/alienation and contributing factors such as racism and sexism, mitigating in the formative years the effects of high levels of aggression in our society.

Sixth, these teachers have the capabilities and vision to take reciprocal teaching to its next stage, as a proactive inclusive school-wide strategy. Supported by the credibility, knowledge, expertise and role clarity of facilitators, and by specialised support professionals, they are the key to school-wide integration of inclusive methods.

Finally, unified infrastructures are needed to sustain inclusive practices such as reciprocal teaching on a school-wide basis. This study demonstrates the first phase (the most demanding in terms of effort, support and expertise) of a three phase implementation strategy.

CONSIDERATIONS FOR IMPLEMENTATION

This study demonstrates the first steps towards taking reciprocal teaching into an effective and sustainable vision for systemic school-wide improvement. The outcomes demonstrate high impact results are attainable for all students and teachers within a short timeframe.

Any implementation design is only do-able and feasible if enablers and challengers are anticipated and planned for. Some of these will be itemised, with the focus primarily on those at systems level, and a few at teacher and class level.

SOME LIKELY CONSTRAINTS AND CHALLENGES

The key factors that make this programme effective are not widely understood:

1. Widespread lack of use of reciprocal teaching. Surveys at cluster meetings representing different districts (June, 2013; May, 2014; August, 2014; September, 2014) have continued to indicate few if any teachers using reciprocal teaching in their classes.

2. Relative absence of models of a comprehensive school-wide strategy.
3. Brief window of opportunity and timeframe for strategic decision-making and fund allocation within the context of schools' annual scheduling and competing commitments – when a 'new' PLD programme becomes available.
4. Inadequate funding to support adequate and ongoing PLD.
5. Inadequate funding for extra in-class support teacher/s during the steep learning curve and high effort Phase One. Note that this is essential where teachers have a disproportionate number of low achieving students and few resources.
6. Potential overload and interruptions to momentum for teachers and schools if there are too many prior and ongoing commitments and day to day responsibilities. Competing activities during the programme eg. withdrawal programmes, teacher aide role being attached to a student's programme only (often due to traditional forms of accountability to funding providers).
7. Difficulties accessing extra appropriate support staff, who are articulate teachers that can motivate students. Note that the reliever pool may be stretched in the winter months and for part-time days.

ENABLERS AT THE SYSTEM LEVEL

1. Outcomes that can be achieved by implementing reciprocal teaching have an exceptionally good fit with ALL Ministry priorities.
2. School leaders are becoming increasingly aware about the potential of this programme to fit with their school's strategic goals.
3. Timely supplementary financial support is crucial.
4. Providing vision and direction. Although reciprocal teaching is aligned with Ministry priorities, school leaders need to shift to a broader vision, an understanding of integrity to achieve results, and different mobilisation of staff in schools. This would occur through several channels including dialogue with stakeholders, accessible intensive PD and PLG through collaborative school-wide and cluster learning communities, introductory roadshows well ahead of time could provide school leaders a rationale and impetus for action.
5. Preliminary consultation with school leaders re vision, school-wide design, school readiness, school characteristics, and possible options within communities of learning.
6. Timeliness of notification and availability of PLD is also crucial.
7. Initial contracting and action plan with short and long term goals and smart strategy, staffing, assessment and resources for students (including SEN), alignment with school cultures and systems. The action plan would need development and revision at key milestone points (regular review meetings would be part of the action plan schedule), and be aligned with the strategic goals and annual achievement targets identified within schools. Some small schools can move fast into school-wide, whereas many will require a 'start small' approach to develop knowledge and skills, and take a tuakana/teina, catalyst, support, model and lead role, a few steps ahead for others to follow.
8. Immediate development of a lead school-based team. In larger schools this may include senior staff and / or school coordinator, including the literacy leader and/or suitable lead teacher. Ideally reciprocal teaching is located in one department / syndicate 'so the programme doesn't

get lost'. This project will have success if working with a team of teachers, supporting and learning from each other

9. Concurrent development of suitable skilled trained teachers within each school or cluster of schools. They would have a lead role in ongoing programme maintenance and PLD, such as in-class modelling, coaching, guidance and support. In some schools release time for a support teacher (if the programme is classroom based rather than in a designated teaching or MLE space) and / or for in class observation and feedback by team members would work. These specialised support teachers may be co-opted to work for a term to achieve further accreditation under supervision to develop reciprocal teaching in their and other schools. This would provide for sustainability of reciprocal teaching in the school and district. For secondary schools sustainability would need to be linked in to the new IES initiative.
10. PLD well-resourced with adequate time allocation for staff release and associated budgeting. Nearly all teachers will need practical assistance and support with learning and applying new skills, implementation and monitoring. PLD involving key understandings, skill training including video / feedback and a 3 phase approach, with 'community of practice' to allow teachers to dialogue and deeply embed new thinking and successful use of reciprocal teaching, and assist and support each other. Phase 1 has most of the PLD effort and time allocation due to the intensive coaching phase, with time also allocated for assessment and data entry, planning, resource development, coordination, and supporting the in-class start-ups and phasing in. The schedule would comprise, say, 2 PLD days for PD including preparation and in class fishbowl training, followed by in-class co-teaching / support / feedback by expert coach (and support teacher) and 2 or 3 PLG sessions over 4 to 8 weeks. Phase 2 and 3 could occur after the first progress data becomes available, with further 2 briefer PLG sessions (eg. video / in situ feedback, broadening strategy use), follow up and strategy meetings occurring, say, over 2 or more terms.
11. Funding for extra support teacher during the first two years of intensives (Phase One) at the frontline. The amount of time required would be 20 hours (spread over 4 to 5 weeks) for two groups of up to 5 or 6 students. An extra in-class support teacher for Phase 1 intensives for each class used in a phasing sequence – 'made the difference for teachers between being able to successfully manage the intensity of the PLD or not' (Principal's comment).
12. Funding for PD + PLG.
13. External expert facilitator is an absolute essential, according to principals consulted. If left to in-school after initial introduction, the programme will fold no matter what good intentions are held by the school.
14. Reciprocal teaching needs to be seen by teachers as complementing their teaching, not adding another layer on top. In the current study one of the teachers said it'd be criminal not to continue using reciprocal teaching after the overwhelming results they achieved.
15. External facilitators need up to date evidence-based understandings and practice; be able to collaboratively and flexibly facilitate and coach skills required for effective reciprocal teaching with staff, students and student groups; and facilitate inclusive practices (eg. differentiated learning) and system-wide improvement. They also need to be able to sustain relational trust with school leaders and teaching staff. Reciprocal teaching and related knowledge and skill domains include oral and conceptual language, literacy, cognition and metacognition, cooperation, participation, facilitation and leadership skills, observation / feedback / co-work, cultural awareness and responsivity. One role may be to initially introduce the fishbowl, model, co-work and coach during group time, with a reliever providing extra in class support if needed. Another is consulting, leading and facilitating strategy decisions at key points as well as opening

up and working through dissonance. Eventually this role can be continued in-school facilitated by Literacy Leader.

16. Phone and online consultative and strategic support by an expert facilitator / coach.

ENABLERS FOR TEACHERS AND THEIR CLASSROOMS

1. Match with teacher's and teaching team's own learning pathways, strengths, beliefs, readiness, willingness and capability in relation to taking on reciprocal teaching.
2. Time for action planning and coordination, pre- and posttesting, identifying students needing adaptations and grouping considerations, resource development, adjustments to existing programmes and timetables. It is crucial this is just not an add-on time-wise for teachers.
3. Timetabling at prime time to minimise interruptions and student absenteeism patterns (eg. Late arrival students, Monday absenteeism).
4. Empowering through creative and student-owned cultural and age level appeal of the introductory fishbowl, procedural verbal, nonverbal and visual prompts (including tuakana-teina) and resources, supporting new and transferable learning quickly.
5. PLD and in-class modelling, learning from co-working, individualised assistance.
6. PLD to maximise the shift from Phase One (which was located in middle block, specific to reading, to literacy, and to the senior syndicate teachers) to Phase Two and Three.
7. Communication and coordination protocols between teachers and extra in-class teacher.

CONSIDERATIONS FOR FURTHER IMPLEMENTATION RESEARCH

Reciprocal teaching is a proactive inclusive teaching and learning strategy that is both aligned with national policies and goals, and much needed to enable more students to experience a curriculum that is inclusive of their identities, languages, abilities and talents.

A priority for further research and development of reciprocal teaching as a multipurpose inclusive strategy would include investigating implementation in schools and kura, with a view to maximising the potential of reciprocal teaching more broadly and deeply, with four interlinked purposes:

1. To enhance oral language, listening, thinking and social skills, and student agency in the early years.
2. To strengthen positive peer influence, 'one of the most significant drivers of student achievement' (Alton-Lee, 2014). Simultaneously this may prevent deteriorating engagement, motivation, participation, and achievement levels, and associated alienation and bullying including racism, sexism, social exclusion and stigmatisation, which are prevalent in NZ cultures but 'often invisible to teachers' (see BES Exemplar 7: Bullying, Racism, Identity and Exclusion').
3. To strengthen and maintain effective interactive learning and student agency throughout the schooling years, through the use of reciprocal teaching as a core teaching and learning strategy for all teachers and students.
4. To develop effective cross-curriculum development of reciprocal teaching, for example, between literacy and science (putaio) education throughout the schooling years. Note that students from many ethnic groups, including Pasifika, learn more optimally with nonfiction texts.

Implications are that the reciprocal teaching intervention would be strategically set up, including at formative times such as early in the school year, and throughout early and middle primary, intermediate, early secondary and prevocational. Further implementation research needs to be

longitudinal, over a more extended timeframe, with a communities of learning approach across schools. Additional measures would cover attendance, perception of safety and belonging (eg. TIMSS Index of Students' Perception of Being Safe in School), and outcomes for specific learning objectives in one or two learning areas.

REFERENCES

1. Alton-Lee, Adrienne (2014). *BES Exemplar 7: Bullying, Racism, Identity and Exclusion*. BES Iterative Best Evidence Synthesis Programme Hei Kete Raukura. Draft.
2. Alton-Lee, Adrienne, Westera, Julia & Diggins, Cathy Pulegatoa (2012), *BES Exemplar 4 Nga Kete Raukura – He Tauria 4 Reciprocal Teaching*. BES Iterative Best Evidence Synthesis Programme Hei Kete Raukura. <https://www.educationcounts.govt.nz/topics/BES> NZ.
3. Bishop, R., & Glynn, T. (1999). *Culture Counts: Changing Power Relations in Education*. Palmerston North, New Zealand: Dunmore Press.
4. Biggs, J.B., & Collis, K.F. (1982). *Evaluating the Quality of Learning-the SOLO Taxonomy*. (1st ed) New York: Academic Press
5. Blasé, K.A., Van Dyke, M., Fixsen, D.L., & Bailey, F. W. (2012). Key concepts, themes and evidence for practitioners in educational psychology. In Kelly, B. & Perkins, D.F. *Handbook of Implementation Science for Psychology in Education*. Cambridge University Press.
6. Carter, C. (1997). Why reciprocal teaching? *Educational Leadership*, 54, 64-68.
7. Cohen, J. (1992). Quantitative methods in psychology: A power primer. *Psychological Bulletin*, 112(1), 135-159.
8. e-asTTle, available online (<https://e-asttle.tki.org.nz/>).
9. Gilroy, A., & Moore, D.W. (1988). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities with ten primary school girls. *Educational Psychology*, 8, 41-49.
10. Hacker, D.J. & Tenent, A. (2002). Implementing reciprocal teaching in the classroom: Overcoming obstacles and making modifications. *Journal of Educational Psychology*, 94 (4), 22-63.
11. Hattie, J. A. C. (2009). *Visible Learning: a synthesis of over 800 meta-analyses relating to achievement*. Routledge: London and New York.
12. Hattie, J. A., & Brown, G. T. L. (2004). *Cognitive Processes in asTTle: The SOLO Taxonomy*: University of Auckland / Ministry of Education.
13. Klingner, J. K., & Vaughn, S. (1996). Reciprocal teaching of reading comprehension strategies for students with learning disabilities who use English as a second language. *The Elementary School Journal*, 96, 275-293.
14. Le Fevre, D. M., Moore, D. W., & Wilkinson, I. A. G. (2003). Tape-assisted reciprocal teaching: cognitive bootstrapping for poor decoders. *British Journal of Educational Psychology*, 73, 37-58.
15. Neale Analysis of Reading Ability (Revised Australian Edition, 1999)
16. Neufeld, B. & Donaldson, M. (2012). In Kelly, B. & Perkins, D.F. Coaching for instructional improvement. Conditions and strategies that matter. *Handbook of Implementation Science for Psychology in Education*. Cambridge University Press.
17. Palincsar, A. S., & Brown, A. L. (1983). *Reciprocal teaching of comprehension-monitoring*. Technical Report No. 269. Cambridge, MA: Illinois University, Urbana Center for the Study of Reading, Bolt, Beranek and Newman Inc.
18. Palincsar, A. S., & Brown, A. L. (1984). Reciprocal teaching of comprehension-fostering and comprehension-monitoring activities. *Cognition and Instruction*, 1, 117-175.
19. Palincsar, A.L. & Schutz, K.M. (2011). Reconnecting strategy instruction with its theoretical roots.

Theory into Practice, 50:2; 85-92.

20. Seymour, J.R. & Osama, H.P. (2003). Reciprocal Teaching procedures and principles: two teachers' developing understanding. *Teaching and Teacher Education*, 19, 325-344.
21. Share, D.L. (1995). Phonological recoding and self-teaching: sine qua non of reading acquisition. *Cognition*, 55, 151–218.
22. Smith, S., Timperley, H., & Francis, R. (2011). Reciprocal teaching: Effects on deep features in reading. Unpublished manuscript Massey High School, Auckland.
23. Timperley, H., Wilson, A., Barrar, H. & Fung, I. (2007). *BES Teacher Professional Learning and Development*. Ministry of Education, Wellington.
24. Westera, J. (1996). Developing a systemic approach to reading comprehension in high school. *New Zealand Journal of Educational Studies*, 31 (2), 121-130.
25. Westera, J. (2002). *Reciprocal teaching: a school-wide inclusive strategy*. PhD, University of Auckland. <https://researchspace.auckland.ac.nz/handle/2292/767>
26. Westera, J. (2013). *Reciprocal Teaching: a Rethink on Effective School-wide Implementation*. 6th Educational Psychology Forum, Hamilton.
27. Westera, J. (2014a). Reciprocal Teaching: a School-Wide Core Teaching and Learning Strategy for all Schools. *Education Gazette*. Wellington, 14 April.
28. Westera, J. (2014b). *Reciprocal Teaching: an update from a New Zealand perspective, with implications for effective school-wide implementation*. Implementing Implementation Science Conference, Cambridge, 28 July.
29. Westera, J., & Moore, D. M. (1995). Reciprocal teaching of reading comprehension in a New Zealand high school. *Psychology in the Schools*, 81, 283-293.
30. Westera, J., Smith, S., Francis, R., & Gasson, C. (2012). *Reciprocal Teaching at a New Zealand high school: Then and now*. 5th Educational Psychology Forum, Auckland.
31. Westera, J., Smith, S., Ritchie, B., Francis, R., & Gasson, C. (2013). *Reciprocal Teaching: a No. 1 smart tool to accelerate achievement in reading across the curriculum for all students*. Presentation to national managers, Ministry of Education, Wellington.

DATA TABLES

Table 1. Reaching achievement results

Means, standard deviations and effect sizes before and after reciprocal teaching sessions. Benchmarks for effect sizes have been set at 0.20 (small), 0.30 (medium) and 0.60 (large).

Reading Accuracy (Neale)		n	Mpre	Mpost	SDpre	SDpost	ES	
All		71	8.78	9.95	1.84	2.24	0.40	M
Accuracy Age at Pretest	6.06 - 8	17	6.88	9.17	0.37	2.61	0.87	L
	8+	54	9.37	10.20	1.71	2.06	0.31	M
Ethnicity	Māori	9	9.37	9.17	2.09	1.97	-0.07	
	Pasifika	39	8.48	9.79	1.44	2.29	0.48	M
	European	17	9.10	10.69	2.29	2.25	0.50	M
	Asian	5	8.06	9.44	0.63	1.05	1.13	L
	African	1	13.00	13.01	0.00	0.00	NA	
Year level	4	32	8.73	9.40	1.77	2.21	0.24	S
	5	20	9.25	10.39	2.20	2.23	0.37	M
	6	19	8.36	10.41	1.37	2.11	0.81	L
High comprehenders (at or above level 3a on e-asTTle)		15	9.44	11.89	2.39	1.73	0.83	L
Low comprehenders (scoring 1+ years higher on accuracy than comprehension (Neale))		29	9.77	10.35	1.74	1.97	0.22	S
Girls		37	8.78	10.31	1.76	2.03	0.57	M
Boys		30	8.90	9.68	1.98	2.40	0.25	S

Reading Comprehension (Neale)		n	Mpre	Mpost	SDpre	SDpost	ES	
All		71	7.81	9.61	1.57	2.14	0.68	L
Reading Accuracy Age at Pretest	6.06 - 8	17	7.18	8.45	1.02	2.22	0.52	M
	8+	54	8.01	9.98	1.66	1.98	0.76	L
Ethnicity	Māori	9	8.17	8.70	1.89	2.03	0.19	S
	Pasifika	39	7.24	9.30	1.08	1.97	0.92	L
	European	17	8.87	10.67	1.83	2.24	0.62	L
	Asian	5	7.65	9.45	0.78	1.34	1.17	L
	African	1	10.00	13.00	0.00	0.00	NA	
Year level	4	32	8.02	9.36	1.65	2.30	0.47	M
	5	20	7.76	9.82	1.83	2.16	0.73	L
	6	19	7.53	9.83	1.00	1.75	1.14	L
High comprehenders (at or above level 3a on e-aSTTle)		15	9.11	12.00	2.13	1.37	1.14	L
Low comprehenders (scoring 1+ years higher on accuracy (Neale) than comprehension (Neale))		29	7.43	9.90	1.15	1.94	1.09	L
Girls		37	7.67	9.90	1.33	2.01	0.93	L
Boys		30	8.09	9.47	1.85	2.24	0.48	M

Overall (e-asTTle) scaled scores		n	Mpre	Mpost	SDpre	SDpost	ES	
All		83	1373.30	1393.34	65.41	62.56	0.22	S
Reading Accuracy Age at Pretest	6.06 - 8	8	1372.00	1389.50	81.35	63.79	0.17	S
	8+	43	1349.40	1370.70	65.87	57.73	0.24	S
Ethnicity	Māori	8	1372.25	1401.25	66.14	61.34	0.32	M
	Pasifika	44	1368.50	1389.39	65.05	60.48	0.24	S
	European	20	1379.60	1392.90	69.86	71.32	0.13	S
	Asian	9	1386.00	1411.78	60.01	54.41	0.32	M
	African	2	1363.00	1370.00	14.00	6.00	0.46	M
Year level	4	25	1333.24	1365.44	57.45	54.71	0.41	M
	5	29	1371.07	1384.62	61.13	67.18	0.15	S
	6	29	1410.07	1426.10	54.07	47.84	0.22	S
High comprehenders (at or above level 3a on e-asTTle)		37	1431.81	1442.03	31.36	43.58	0.19	S
Low comprehenders (scoring 1+ years higher on accuracy (Neale) than comprehension (Neale))		21	1356.38	1376.29	53.32	51.22	0.27	S
Girls		44	1375.30	1396.09	61.55	59.73	0.24	S
Boys		39	1371.05	1390.23	69.43	65.47	0.20	S

Surface features (e-asTTle) scaled scores		n	Mpre	Mpost	SDpre	SDpost	ES	
All		83	1374.22	1390.00	73.28	70.91	0.15	S
Reading Accuracy Age at Pretest	6.06 - 8	8	1372.13	1377.50	89.33	70.31	0.05	
	8+	43	1348.84	1364.84	74.79	63.86	0.16	S
Ethnicity	Māori	8	1373.75	1390.63	74.01	69.80	0.17	S
	Pasifika	44	1369.73	1386.93	73.97	70.01	0.17	S
	European	20	1381.65	1386.45	80.79	78.41	0.04	
	Asian	9	1383.56	1410.56	51.69	62.54	0.33	M
	African	2	1358.50	1398.00	40.50	0.00	0.98	L
Year level	4	25	1336.72	1362.52	67.94	61.04	0.28	S
	5	29	1371.83	1381.17	75.53	77.30	0.09	
	6	29	1408.93	1422.52	57.13	58.47	0.17	S
High comprehenders (at or above level 3a on e-asTTle)		37	1435.16	1442.41	38.86	55.11	0.11	S
Low comprehenders (scoring 1+ years higher on accuracy (Neale) than comprehension (Neale))		21	1354.10	1368.67	62.41	56.62	0.17	S
Girls		44	1376.43	1392.95	68.28	65.15	0.18	S
Boys		39	1371.72	1386.67	78.47	76.76	0.14	S

Deep features (e-asTTle) scaled scores		n	Mpre	Mpost	SDpre	SDpost	ES	
All		83	1371.89	1398.04	65.29	60.98	0.29	S
Reading Accuracy Age at Pretest	6.06 - 8	8	1373.88	1406.75	82.35	59.10	0.32	M
	8+	43	1348.93	1376.79	64.31	58.99	0.32	M
Ethnicity	Māori	8	1375.88	1418.13	62.72	54.47	0.51	M
	Pasifika	44	1365.80	1393.93	66.07	59.61	0.32	M
	European	20	1375.90	1399.70	63.40	68.15	0.26	S
	Asian	9	1390.00	1407.44	70.41	53.61	0.20	S
	African	2	1368.50	1349.00	9.50	10.00	-1.41	
Year level	4	25	1327.56	1366.28	50.97	51.35	0.54	M
	5	29	1371.10	1391.48	58.40	64.64	0.23	S
	6	29	1410.90	1431.97	57.73	46.14	0.29	M
High comprehenders (at or above level 3a on e-asTTle)		37	1426.86	1441.16	38.81	42.57	0.25	S
Low comprehenders (scoring 1+ years higher on accuracy (Neale) than comprehension (Neale))		21	1358.52	1386.76	55.97	52.25	0.37	M
Girls		44	1374.07	1401.55	63.85	61.83	0.31	M
Boys		39	1369.44	1394.08	66.78	59.77	0.27	S

Table 2. Student survey results

Question	Mean	Std Dev
How much do you like to read?	7.94	2.11
How much did you like the articles we read together for Reciprocal Teaching?	7.57	2.58
Because of doing Reciprocal Teaching, how much do you think your reading has improved?	8.29	1.87
How much would you like to do more Reciprocal Teaching?	7.64	2.62
Because of doing Reciprocal Teaching, how I feel about friends is	7.74	2.20
Because of doing Reciprocal Teaching, how I feel about school is	8.09	2.35
Because of doing Reciprocal Teaching, how much do you think your use of the 4 skills has improved?	8.39	1.92
How much have you used the 4 skills at other time (that is, at times when you weren't doing Reciprocal Teaching groups)?	6.06	2.84
Because of doing Reciprocal Teaching, I read (much less ... less ... same ... more ... much more).	7.89	2.10
How do you rate your clarifying skills?	7.84	2.09
How do you rate your questioning skills?	7.82	2.11
How do you rate your summarising skills?	7.42	2.32
Because of doing Reciprocal Teaching, I am better at learning in a group.	8.13	2.07
Because of doing Reciprocal Teaching, I am better at leading a group.	8.39	1.88

* Scores standardised to 10 (from 5 and 7 on Likert rating scale).

STUDENT SURVEY

Overall the student feedback and experience was very positive.

On the survey students gave their highest rating to having improved skills in reading, using the 4 thinking skills, and in being group leaders. High ratings were also given to learning better in a group and to enjoying school more.

Although many students did not give examples of transferring the use of the 4 skills outside the group sessions, student data showed many examples of when students were applying the skills in several settings and activities. At school, students indicated using the four skills widely during reading time, inquiry time, mat time and also in other curriculum areas (eg. maths, spelling, writing). Students reported using these skills with the teacher, with peers in group work and with individual work tasks. One student indicated the skills had been used during a peer mediation situation for 'solving a problem'.

In the home context students reported using reciprocal teaching skills with other family members. Skills were reported being used within a range of family activities. Two examples include the use of 'summarising', after watching the TV news, and 'prediction' following watching a movie. The student data reflected students were also using reciprocal teaching skills in meaningful ways with family members in real life activities. Note that one teacher reported that, at the 3-way-conferences, parents mentioned their daughter and son (in another class) were using reciprocal teaching at home with their younger brother.

Students have also been able to reflect and evaluate their own progress and identify their next learning steps. On the survey they wrote comments such as the following:

'Reciprocal Teaching has helped me a lot through the term. I've never done reading in a group before so it was fun being the teacher, helping others out and not the teacher always being the teacher.'

'I really enjoy reciprocal teaching because it helps me work with a group and I can predict and summarise without help. Now I am confident and I have a really loud voice and it's making reading easier for me to understand the text.'

'Now I am really good at summarising and I know more words and what they mean.'

'I need more help in being confident and summarising.'

Students recorded that the most enjoyable aspects of reciprocal teaching were 'being the teacher', 'asking good questions' and 'clarifying', while 'summarising' was reported as least enjoyable. Also rated relatively highly were 'Understanding the meaning of a word', 'Getting better at reading' and 'Learning new words'. Comments from students interviewed by the syndicate leader included:

'Everybody gets a turn at being the teacher so shy people become confident at leading the group.'

'It helps me to learn to clarify, question, summarise and predict so I'm getting better at reading.'

'I like the strategy clarifying because when you're reading and you don't know what a word means you can ask the group to clarify it.'

'I like it when I learn something new by clarifying a word.'

'I'm getting better with my reading and understanding, so I can help xxx in room x.'

'It's helping me to understand words I don't know. I can question myself to understand the text.'

'I like being the teacher because you can ask people questions.'

'I've learnt how to ask inferential questions.'

TEACHER SURVEY

Overall the teachers' feedback was very positive, with many benefits for their students, including:

- Improved confidence, oral language and participation.
- There were examples in several classes of students who hardly spoke in group time becoming active collaborative leaders during reciprocal teaching group time.
- 'children becoming more articulate'; 'children that are usually quieter, are running the group with clear confidence'; 'confidence, leadership, discussion, oral language development, thinking about thinking'; 'Some quieter children are really beginning to "shine" showing confidence, louder voices'.
- 'ESOL children are becoming more confident, their English is improving'. 'Especially when a lot of our students speak another language at home, they need to develop their oral language skills continuously all the time.'
- 'They were able to be a part of the process every session. Whether they were the teacher or just adding to the current teacher by clarifying a word or answering a question. They were required to always be thinking and answering.'
- '... an awareness of what they have to be actively doing in order to improve their comprehension.'
- Increased comprehension. 'comprehension levels had increased'.
- Increased opportunities to learn. Teacher feedback highlighted students were 'taking more risks as a non-threatening, risk free culture has been created' and there were more 'opportunities to become a leader, opportunities to develop oral language'.
- 'students are gaining self-managing skills as well as thinking skills in reading. This helps with teaching children to work together by communicating appropriately. Once this is sorted then learning will come easily. We are definitely enhancing their comprehension skills and teaching them the skills to uphold meaning in a text'.

Teachers changed their methods

4 of 5 teachers had sometimes used 'reciprocal reading'; but 'before it was very different and we got very different results'; 'the new way ... is more beneficial and enables more productive dialogue amongst the members of the group'.

Benefits of two teachers co-working in one classroom with reciprocal teaching groups for an hour a day:

- Each group worked with a teacher every day, giving them more instructional reading and learning. It benefitted planning, knowing there was another teacher taking two groups each day. There were less students doing 'independent' activities which meant less background noise.
- Can see more into the individual children's thinking.
- Behaviour easier to manage.
- A trained teacher would have a better understanding of the reading process and skills in managing behaviours, motivating students, etc.

- Children were more focussed and motivated as the goal of the programme was shared at the beginning.
- Excellent having a highly experienced extra teacher using reciprocal teaching group work for oral language, literacy and social development. The extra teacher needs to be able to setup new and effective personal and group relationships and learning quickly at outset (for about 40 students per day), run an intense set of 6 groups (from 3 classes) per 3 hour block – and be able to have done the PLD and to link in with 3 teachers on initial baseline data on students, key texts, topics, followup activity procedures, etc.
- Reciprocal teaching coaching is intense. Logistically two teachers in the class for an hour daily makes it possible to do an intense continuous coaching programme. Teachers are under less pressure, have in class support, and are freed up to build close teaching relationships and intensely coach 2 of their groups of students at a time – and closely observe, evaluate and teach to their students’ strengths and needs - 3 to 4 times per week for an hour.
- All students have quality connected instruction for an extended period of time; every group having this experience 3 or 4 times per week is ‘fantastic’.
- ‘I’m amazed at what ... can do, how they can contribute, when they’re usually quiet.’

Parents /whānau

How do you see Reciprocal Teaching being maximised with parents / whānau?

‘Introducing it & showing ways that it could be used in an everyday situation at home or in the workplace.’

‘Parents need to be on the same page as the teacher and the student. I took our 3-way conferences as a chance for the students to share what we are doing in reciprocal teaching. The students explained the process and we exposed them to it. Some have mentioned they use it at home, but I would like this to be happening a lot more.’

– inviting the parents into school to see the programme in action

– perhaps incorporating reciprocal teaching strategies into our READING TOGETHER programme

‘If we model this process to parents and whānau , they could do this at home and show them this is a lifeskill. it could be transferred in our daily lives.’

‘I think it will be most beneficial if parents knew about four techniques and used them as necessary in real life contexts.’

Professional learning and development

‘Give more time for the teachers to discuss and model the reciprocal teaching process with a selected group before handling or starting in your own class’; ‘more PLD during the whole process, eg. half way through the whole journey to consolidate & decide ‘where to next’ i.e. released from class’; ‘time to observe each other so we can learn from each other, give feedback / feedforward.’

‘I found it extremely beneficial that our Syndicate was able to weave reciprocal teaching into our already existing PD that focused on an inquiry into using comprehension strategies (Sheena Cameron’s work) to help students to better understand challenging text.’

‘Modelling is the best way to teach children, they (and we) learn by watching and doing - Teacher and students.’

‘If the post test results are positive, then we must continue to use reciprocal teaching techniques across the school and curriculum areas’

'I have enjoyed every step of the way and will definitely treasure this for the rest of my teaching life.'