

2024 Premier’s NESA Quality Teaching Scholarship

The Explicit Teaching and Progress Monitoring of Literacy and Numeracy Outcomes in Years 6-9

Nurturing student wellbeing through the curriculum in the middle years

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# Introduction

At present, the Literacy and Numeracy skills of Australian students are characterised as inadequate, with students in Year 5 who fall short of the NAPLAN National Minimum Standard overwhelmingly showing limited or no growth by the time they are in Year 7 and 9 (AERO, 2023b, p. 9). These NAPLAN performance trajectories reinforce the consensus that limited Literacy and Numeracy abilities in Year 5 are significant predictors of underachievement in Year 7 and 9.

Since switching from working as a primary school teacher to a secondary teacher, I have observed that high school students who struggle to apply Literacy and Numeracy outcomes across different subjects typically:

1. do not catch up without intervention, and
2. are more likely to experience negative impacts on their wellbeing

By way of their lack of academic achievement, students can become absorbed in a downward spiral of suspensions, low attendance rates and, for some, a complete withdrawal from school. Students can consider school to be a place where they do not belong. Students may grapple with shame as they introspectively assume that there is something inherently wrong with them.

Proficiency in Literacy and Numeracy skills can be considered precursors to positive student wellbeing, as these skills encourage students to stay connected to school and address broader social inequity concerns. The genesis for this research and study tour stems from my anecdotal evidence that with explicit Literacy and Numeracy instruction and case management, students can become increasingly engaged learners who remain enrolled at school, attend on a more regular basis and experience increased educational growth.

# Focus of Study

The primary aim of this research and related study tour activities was to investigate the relationship between the explicit teaching and progress monitoring of Literacy and Numeracy outcomes and improved incidents of student wellbeing in the Middle Years, which I identified as Years 6-9. By touring secondary schools in New Zealand and Tasmania that are implementing explicit teaching and progress monitoring of Literacy and Numeracy outcomes, I wanted to experience a repertoire of approaches that address student Literacy and Numeracy deficits in the Middle Years. I chose to travel to New Zealand as I have a particular interest in the Common Practice Model (CPM). The CPM outlines theoretical frameworks and pedagogical approaches “to provide clarity and direction for Literacy, Communication, and Maths teaching and learning” (New Zealand Ministry of Education, 2023, p. 2).

For clarity throughout this paper, the term “Literacy” is used to refer to the branch of knowledge concerned with the ability to decode (use sound-letter correspondences to pronounce words), comprehend a range of texts, spell, listen, speak, understand and use a range of vocabulary appropriate across various situations and write a range of textual forms (Australian Curriculum, Assessment and Reporting Authority, 2024a). “Numeracy” refers to the knowledge, skills and behaviours required to use Mathematics across a range of situations (Australian Curriculum, Assessment and Reporting Authority, 2024b).

# Significant Learning

### Multi-Tiered System of Supports (MTSS)

In working with educators and students in New Zealand and Tasmanian schools, I co-taught within learning environments that prioritised a concerted approach toward teaching Literacy and Numeracy outcomes for students in the Middle Years. The Multi-Tiered System of Supports (MTSS) Framework organises the delivery of intervention for students identified as requiring additional learning support. MTSS uses three tiers of instruction, Tier 1, 2 and 3, to enact supports that are tailored to individual student needs. Tier 1 focuses on whole-class instruction, and Tier 2 and 3 involves targeted interventions in small groups or individualised support that ideally consolidate high-quality Tier 1 learning.

At Mairehau High School, I saw all three-tiered levels of intervention working in harmony. Strategic collaboration between teachers helped to make this initiative successful, with Tier 1 teachers and interventionalists collaboratively sharing strategies and programming. With this opportunity to pre-teach important concepts within Tier 2 and 3 groups, I observed positive effects on student wellbeing where students had received explicit support prior to their classroom lessons. For instance, one group of Year 9 students had regular withdrawal sessions to revise algebra concepts and practise reading and comprehending written problems in preparation for an upcoming algebra unit. Assessment data from these Tier 2 and 3 groups were shared with teachers for a shared understanding of student abilities, consequently informing differentiation strategies that were used to improve student participation. I considered how this would have been beneficial for some of my former students who would often behave in ways that “masked” their learning difficulties to avoid being perceived as deficient in their ability to read, write or perform basic mathematical tasks. I learned that data-driven progress monitoring in Tier 1, 2 and 3 contexts can support struggling students to access the curriculum and participate in classroom learning with tailored adjustments.

### Screening Tools and Assessments for Progress Monitoring

One of my primary objectives during the study tour was to learn effective methods of identifying and progress monitoring students in need of Literacy and Numeracy support. I met with instructional leaders at Hobart City High School who showed me their range of Universal and Diagnostic Screening Tools to identify students needing support with specific Literacy and Numeracy outcomes. A data-triangulation approach using NAPLAN, PAT Data and Australian Curriculum ratings was used to flag students with potential Literacy and Numeracy difficulties. Used at the beginning of Year 7 and subsequently used to track student growth, assessment data from these screening tools guides the allocation of additional support strategies for students in Tier 2 and 3 settings. This can inform consistent instructional approaches across Tier 1 classrooms for students in the Middle Years. I saw this as a fantastic opportunity to collect ongoing data about student preparedness to engage in secondary classroom learning activities.

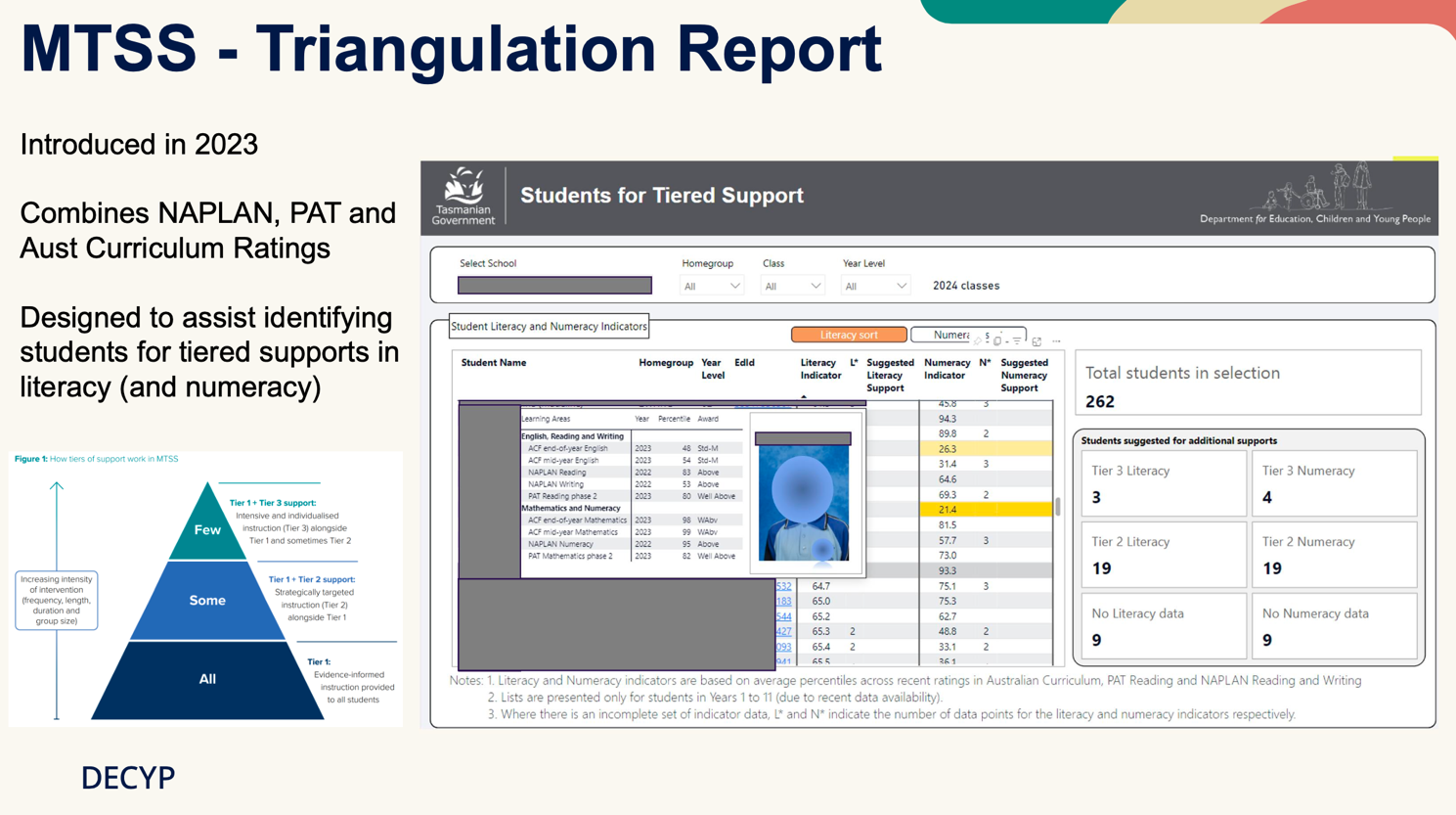
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Figure 1: Triangulation Report used for identifying individual students whose data shows the need for Tier 2 or 3 support and intervention. Source: The Department of Education, Children and Young People, Tasmania.

### Explicit Instruction

As part of the study tour, I participated in online professional development sessions about explicit instruction between school visits. One quote from a conference stood out to me: “Explicit instruction is a group of research-supported instructional behaviours used to design and deliver instruction that provides needed supports for successful learning through clarity of language and purpose, and a reduction of cognitive load” (Hughes et al., 2017, p. 143). Explicit instruction is highly interactive and teacher-led, with students activating existing knowledge, engaging in guided practice while teachers model critical thinking and moving towards applying skills in a “step-by-step” process (Hollingsworth and Ybarra 2018 p. 12). Lengthy verbal explanations are limited. Rather, students actively view, listen and respond with the expectation that they will soon be tasked with achievable practice points designed to promote mastery learning. In learning more about explicit instruction, I came to appreciate that, when teaching explicitly, teachers plan to provide clear guidance accompanied by scaffolded step-by-step practice. Instruction adapts based on point-in-time, ongoing assessment of student abilities.

Throughout the study tour, I realised that the term “explicit instruction” can be considered a subject of debate. Explicit instruction can be regarded as having a dichotomous correlation with inquiry-based teaching, while others perceive it as a model that can strip teachers of creative and autonomous classroom practice. I would like to see a greater awareness regarding a precise definition of explicit instruction, including a clearer delineation of its defining features. I considered how important it is to have a common understanding of how and why explicit instruction is a non-negotiable component in supporting at-risk students to attain Literacy and Numeracy outcomes.

The CPM outlines explicit teaching as a vital mechanism for promoting student Literacy and Numeracy growth, emphasising: “Explicit teaching is essential for ākonga (students) struggling”, and that explicit instruction “Provides clear, unambiguous and carefully scaffolded instruction at an appropriate pace” (New Zealand Ministry of Education, 2023, p. 22). I met with coordinators from the New Zealand Ministry of Education, who explained that high-level descriptions for explicit pedagogical approaches for Literacy and Numeracy were an important feature of the CPM. In this interview, I learned that as it continues to be rolled out in New Zealand schools, the CPM focuses on prioritising learning “that cannot be afforded to be left behind”. At the time of writing, the CPM will be introduced in phases in the coming years as part of a National Curriculum Refresh.

### Culturally Responsive Pedagogies and Nurturing Student Identity

While taking part in Literacy and Numeracy instruction across schools, I realised the significance of culturally responsive pedagogies and student identity in enhancing student wellbeing through quality curriculum implementation. I saw first-hand the synchronous relationship between the attainment of outcomes and nurturing wellbeing through culture and identity: when we feel a sense of belonging and connectedness, we are more accepting that no inherent limitations can prevent our learning success.

At Mairehau High School, the school’s foundations are visually displayed in a cultural narrative called “Our Story” (see Figure 2). Five people in one waka symbolise the journey of individuals from different walks of life, each with their own basket of knowledge, representing strength through unity. The visual story expresses Mairehau’s whole-school approach to supporting student wellbeing, emphasising the importance of personal identity to reach one’s full potential within a culturally supportive educational setting. Principal Harry Romana explained how the school’s student-focused approach is tied with cultural connectedness and student agency. I saw students wanting to be involved in Tier 2 and 3 interventions as they considered this to be an opportunity to engage in personalised Literacy and Numeracy instruction. One student told me: “Being Maori is a type of Chiefdom, like it was before. I live two ways, and I go to school to learn to read and speak so I can lead”. At Mairehau High School, student wellbeing was enhanced through the school environment that nurtured their sense of belonging and had an unwavering belief in their capabilities. I left this school in awe of this approach to supporting student wellbeing.

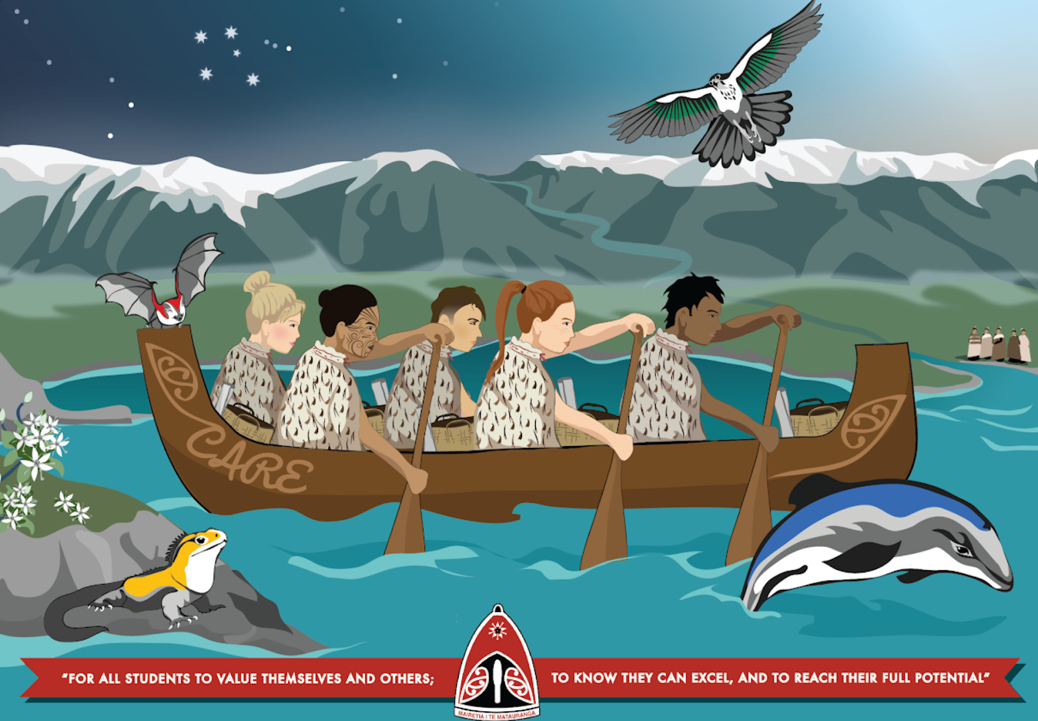


Figure 2: Mairehau High School’s cultural narrative illustrates a collective learning journey, fostering unity, embracing diversity and affirming identity. Source: Mairehau High School.

### Explicit Teaching of Vocabulary Across Subjects

The explicit instruction of academic language needed in different subject areas promotes greater accessibility for students who struggle to attain Literacy and Numeracy outcomes. Beck, McKeowen, and Kucan outline how vocabulary in mathematics lessons in particular “describe very specific mathematical features and actions… students need to recognize [sic] the concepts and procedures the words refer to when they encounter them in word problems” (2011, p. 30). This highlights the need to explicitly teach vocabulary in the Middle Years to ensure all students can engage in educational discourse specific to each subject.

At Macleans College, I observed students in the Middle Years using vocabulary booklets which were used to promote the accurate use of key mathematical vocabulary terms. Teachers marked off words as students demonstrated mastery of targeted vocabulary, building upon student-friendly definitions and experience comprehending and using these words in the classroom context. Also, at Hobart City High School, graphic organisers including those shown below were used to model and express concepts, facts and procedures in order to promote improved vocabulary acquisition and expressive communication. Tier 2 vocabulary words were identified and targeted for their high utility and relevance across multiple subject areas.

Explicit vocabulary instruction was also evident at Macleans College within lessons that included teaching diverse sentence structures. I participated in English lessons in which students analysed different types of sentences in paragraph and essay compositions. The teacher isolated key language features for sentence construction. In a text about tectonic plates, students analysed the sentence: “These plates sit on a layer of semi-molten (melted) material in the Earth’s mantle - the layer of the Earth between the crust and the core.” The lesson explored the use of hyphen indicating “semi-molten” as an adjective, the use of parenthesis, and the dash referring to the Earth’s mantle. To improve Literacy and Numeracy outcomes, all subjects can plan to include short, regular lessons that explicitly interpreting contextualised language instruction such as this.

### Concrete Materials and Pictorial Representations

For secondary students, using concrete materials and manipulating pictorial representations of abstract concepts is a means of reinforcing understanding and transferring Literacy and Numeracy outcomes to long-term memory. Explicit instruction with multiple representations can support students in making connections and following procedures with greater ease. This practice is supported by the “Dual Coding Theory” which proposes that multimodal information enhances the automaticity of previously learned content (Winstein, Sumeracki & Caviglioli, p. 112). Strengthening Literacy and Numeracy skills in the Middle Years can be enhanced by incorporating concrete materials and pictorial representations.

Multiple methods of representation can be used to support the attainment of Numeracy skills. According to AERO, Concrete-Representational-Abstract sequences are “Beneficial for improving basic number facts, overall Mathematics, algebra and arithmetic skills” (2023a, p. 218). At Kōwhai Intermediate School, I observed the wonderful integration of these sequences, encompassing modelled, guided and independent practice. I saw Year 7 students using manipulatives to explore Numeracy outcomes, with base-ten blocks used for adding and subtracting decimals and Unifix cubes being used as bar models for repeated addition and multiplication problem-solving. From this experience, I learned how manipulatives can help struggling students to visually represent and discuss their numerical skills, reducing extraneous cognitive load and developing a strong conceptual foundation for abstract outcomes.

### Spaced, Interleaved Practice with Cumulative Review

Given that learning involves a permanent transformation to long-term memory, instructional methods for students struggling in secondary classrooms must carefully incorporate cognitive load management and spaced repetition. Also, interleaving, a process of alternating topics and skills, can assist struggling students in developing connections between related content (Winstein, Sumeracki & Caviglioli, p. 84). When visiting schools, I learned more about Cognitive Load Theory, which describes the demand on working memory and explains how students are unable to dedicate mental resources when contending with too many pieces of information at once (Lovell, 2020, p. 25).

During a Mathematics lesson at Westlake Boys High School, teachers used this approach by using several worked examples to equip students for independent practice. This lesson was separated into a revision session and two “mini lessons”, which included first rehearsing addition and subtraction strategies before finding the distance between coordinates. Students revised and consolidated previously learned concepts in preparation for their application in problem-solving. I observed that cumulatively reviewing content like this within every lesson simultaneously strengthened Literacy and Numeracy outcomes, improving retention and boosting student confidence as they applied knowledge to new and increasingly complex situations. I saw how, when coupled with corrective feedback, retrieval practice was an excellent tool to help struggling students find a balance between challenge and success.

### Structuring Lessons into Distinct Teaching Phases

Across all the schools I visited, I learned that embedding short Literacy and Numeracy tasks into lesson routines can provide students with a sense of structure and security. Entry tasks were a great way of ensuring high school students, moving between several classes a day, could focus by entering classroom spaces with familiar tasks that supported targeted Literacy or Numeracy outcomes. Additionally, in support of students who experience difficulty with Literacy and Numeracy, I noticed how verbal instructions were deliberately slowed, allowing students ample “take-up-time” to process and respond to questions, before moving through different teaching phases.

I learned that structured lesson routines can integrate formative assessments to track student progress in their attainment of Literacy and Numeracy outcomes. At Westlake Boys High School, a Mathematics teacher designated a ten-minute assessment phase mid-way through the lesson for a verbal formative check-in to complement formal assessment practices. Students were verbally presented with problem-solving questions to evaluate their attainment of the lesson’s success criteria. This low-risk, high-ceiling task increased student participation and provided a “way in” for all students to reflect upon their learning, and the teacher used this data to inform the next stage of the lesson based upon student need. Using multiple assessment forms such as this interview-style method was great for students to privately share their understanding before moving on to increasingly difficult outcomes.

At Logan Park High School, I noted the positive impacts of distinct teaching phases incorporating explicit practices for Literacy, teaching sound-letter recognition, spelling, sentence construction and reading fluency. As a routine part of their regular English lesson, I observed Year 8 students entering their class with a familiar “Do Now” phonics task before moving on to a lesson about sound-letter correspondences. In this phase, students learned graphemes that can produce identical sounds for /sh/ (/ti/ as in station, /ci/ as in magician), with the teacher modelling sound production and syllable manipulation to form new words. This learning was consolidated by guided spelling and sentence writing tasks applying these sound-letter correspondences. Students were confident, engaged learners who were welcomed into the classroom by being challenged with achievable tasks that built upon previously taught concepts right from the lesson’s outset.

# Conclusion

There is a gap in the literature regarding the correlation between teaching struggling high school Literacy and Numeracy outcomes and their wellbeing. Further, although there is an abundance of research on how students learn to read, write and become numerate operators, there is currently a shortage of practical, rigorously evaluated guidelines or initiatives in New South Wales guiding high schools in systematically implementing and managing resources for struggling students. In some cases, this can contribute to teenagers completing their schooling career without becoming proficient in reading, writing and performing basic calculations. Continued actions are necessary to bridge theory to consistent classroom practice.

New Zealand’s CPM framework aims to foster strong foundational Literacy and Numeracy skills in schools through consistent, evidence-based pedagogical principles. While the effectiveness of this initiative remains to be determined, explicit teaching, progress monitoring and consistent quality instructional approaches are key aspects of the CPM. In order to promote positive student wellbeing and educational excellence, secondary schools can prioritise Literacy and Numeracy outcomes through dedicated frameworks such as this.

Secondary classrooms require Literacy and Numeracy outcomes for students to:

1. Learn syllabus skills and outcomes, and
2. Demonstrate their skills and their attainment of syllabus outcomes

Given the above, keeping up with classwork positively enhances students’ self-perception of themselves as capable learners. Using NAPLAN National Minimum Standards performance trajectories as an indicator for not meeting key Literacy and Numeracy outcomes, schools can identify at-risk students and proactively support student wellbeing through quality curriculum implementation. Funding is therefore needed to implement consistent, explicit, evidence-based initiatives across Tier 1, Tier 2 and Tier 3 contexts.

The most empowering conclusion I have drawn from this study tour experience is that there are many ways to positively impact the educational achievement of Middle Years students who experience difficulties with Literacy and Numeracy. I believe that explicit teaching and progress monitoring Literacy and Numeracy outcomes are important influences in maximising positive wellbeing rates and keeping students connected with their educational experience. One of my most significant takeaways was how data triangulation can be used to monitor students’ progress. Teachers can use this data to tailor the learning experience for student success, including forming intervention groups and providing strategic in-class support. I have also come away with an appreciation for spaced, interleaved instructional design methods that optimise the transference of knowledge and skills into long-term memory.

Over the course of this study tour, it was evident that students’ level of competence in Literacy and Numeracy outcomes directly impacts wellbeing and academic achievement. To address this, explicit teaching and data-responsive intervention methods, alongside nurturing relationships that prioritise culture and identity, are integral for promoting students’ sense of belonging and wellbeing in high schools. I assert that these teaching elements must be thought of as protective factors that prevent school disengagement and promote positive wellbeing for students in the Middle Years.

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