

SPRING into Maths: Working Collaboratively to Implement a Tier 2 Support System that Improves Student Achievement in Mathematics

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ABSTRACT

Research into the effectiveness of SPRING into Maths as a Tier 2 intervention is limited. This article aims to extend the evidence base for SPRING into Maths through reflective practice that links practitioner voice with theory. The article applies a theoretical lens to SPRING into Maths and provides insights into the journey of a group of practitioners who worked collaboratively to implement SPRING into Maths as a Tier 2 support system at Tamaki Primary School in Auckland.

Practice paper

Keywords:

practitioner voice, SPRING into maths, Tier 2 intervention

WHAT IS SPRING INTO MATHS?

Julie Roberts developed SPRING into Maths in association with Victoria University in 2008. SPRING into Maths is a Tier 2¹ intervention that can accelerate the learning of students who demonstrate significant gaps in their understanding of basic number knowledge and strategies. A diagnostic assessment provides the starting point for the intervention. Roberts (2008) has recommended that teachers conduct a diagnostic assessment with each student, using the IKAN (knowledge) assessment or the SPRING into Maths mini-assessment snapshots, which follow a similar format to the Numeracy Project Assessment (NumPA).

As a Tier 2 intervention, SPRING into Maths works best for a small group of three to five students - from Year 2 and above (Roberts, 2008). This version of SPRING into Maths includes four 'kits' that correspond with the numeracy stages at which students are most likely to require additional support. Kit 1 focuses on moving students to the 'Counting All' stage, while Kit 2 aims to move students to 'Advanced Counting'. Kit 3 focuses on moving students to the 'Early Additive' stage, and Kit 4 aims to support students' consolidation at 'Early Additive.'

As a Numeracy Development Projects-based intervention, SPRING into Maths focuses on improving students' mathematical learning through the manipulation of concrete materials. The intervention includes a list of materials, and each of the four kits comes with a programme overview, activity suggestions, and a student evaluation chart to track progress and achievement.

SPRING into Maths is a supplementary intervention that provides small groups of students with at least three to four additional thirty-minute teaching sessions per week, for six to ten weeks. A teacher, or a teaching assistant (TA) who has ideally received training, facilitates the programme. SPRING into Maths derives its name from the repeated sequence in which students are engaged in the following set of structured activities:

Start counting

Patterns

Reinforcing strategy

Identifying numbers

Numbers facts

Games

CONTEXTUALISING SPRING INTO MATHS

As Macfarlane and Macfarlane (2013) have explained, the challenge for practitioners is to make intervention choices that draw on the best available research evidence, practitioner knowledge, and participant views. Research on the effectiveness of SPRING into Maths as an intervention is limited to a few sabbatical studies (Anderson, 2012; Mackay, 2016; Russek, 2012). The professional experiences of the authors of this article suggest that SPRING into Maths can be an effective intervention. In their experience, the following contextual characteristics make SPRING into Maths an effective Tier 2 intervention choice for students in Year 2 and above, who have significant

¹ Refer to the evidence-based, multi-tiered Response to Intervention Framework (Brown-Chidsey & Steege, 2010).

gaps in their understanding of number knowledge and strategies.

Social Constructivism

Social constructivism can provide a theoretical framework for SPRING into Maths. Vygotsky (1978) conceptualised learning as a socially occurring phenomenon. That is, according to social constructivism, learners actively construct meaning within their zone of proximal development (ZPD) through interactions with others, in dynamic "culturally shaped contexts" (Palinscar, 1998, p. 354). Social constructivism also emphasises the need to 'scaffold' the learning that occurs within the ZPD (De Guerrero & Villamil, 2000).

Using a social constructivist approach, SPRING into Maths can be implemented to provide students with scaffolding focused on: (a) adjusting the complexity of the task, (b) gaining students' attention and keeping them focused, (c) offering models, (d) extending the scope of the immediate learning situation, and (e) providing support so that students can build on their progress (Bruner, 1978).

Culturally-Responsive and Inclusive Practice

"Mathematical understanding and skills contribute to people's sense of self-worth and ability to control aspects of their lives" (Ministry of Education, 1992, p. 7). Effective implementation of SPRING into Maths can provide students with the opportunity and scaffolding they require to interact with others and engage in meaningful learning conversations that draw on their personal, social and cultural experiences (Alton-Lee, Westera & Pulegatoa-Diggins, 2012). For example, when conducting diagnostic assessments, some emerging bilingual students may experience difficulties in demonstrating their understanding of mathematical concepts using English as a second language. Schools can call upon their local community to provide these students with the opportunity to demonstrate their understanding in their first language.

The 'Games' component of the intervention can also be used to provide an authentic context for developing the home-school partnership and supporting students to become numerate across the home-school setting. For example, students could make a range of maths game boards to take home and play with members of their family. The game boards can focus on developing maths concepts such as number identification in English and students' first languages.

Cooperative Learning

In the professional experience of the authors, SPRING into Maths is most effective when it encourages students to work cooperatively. SPRING into Maths can foster a sense of comradery and promote a culture of risk-taking, enabling each student to develop their understanding of number knowledge and strategies in keeping with their ZPD.

When implementing SPRING into Maths, the *tuakana-teina*² buddy concept can be used to draw on students' strengths and encourage them to share their knowledge and expertise within the group context. Furthermore, the *tuakana-teina* system is an integral part of Māori *tikanga*³ that leads to the development of cooperative learning skills (Ministry of Education, 2009). Students from all backgrounds thrive "in a learning environment that recognises the value of *ako*"⁴ [in which] the *tuakana-teina* roles may be reversed at any time (Ministry of Education, 2009, p. 28).

Problem-Solving

SPRING into Maths can create an atmosphere in which students come to understand that not understanding mathematical concepts and making mistakes is "a natural condition for learning" (Alton-Lee et al., 2012, p. 9). In other words, SPRING into Maths has the potential to help students develop a growth mindset and a problem-solving approach to dealing with challenges. That is, instead of attributing the challenges they face to their inability to learn, students can begin to associate the challenges they face with the complexities of maths and learn to persevere. When appropriately implemented, SPRING into Maths can, therefore, create opportunities to develop problemsolving skills, encouraging students to "... practise and learn such simple strategies as guessing and checking, drawing a diagram, making lists, looking for patterns, classifying, substituting, re-arranging, putting observations into words, making predictions, and developing proofs" (Ministry of Education, 1992, p. 11).

Self-efficacy

In addition to the learning conditions described above, the authors of this article believe that SPRING into Maths can serve as a vehicle for developing students' self-efficacy beliefs in mathematics. According to research, self-efficacy is a stronger predictor of mathematics achievement than general mental ability (Stevens, Olivárez & Hamman, 2006). Bandura (1997) described self-efficacy as the perception that

²Tuakana/teina refers to the relationship between an older (tuakana) person and a younger (teina) person and is specific to teaching and learning in the Māori context (Exploring te au kori).

³ Māori customs, protocols, and social values (<u>Te Reo Māori in English-medium schools</u>)

⁴In te <u>ao</u> Māori, the concept of <u>ako</u> means both to teach and to learn (<u>Te Reo Māori in English-medium schools</u>).

individuals hold about their ability to organise and execute the actions that are necessary to succeed at a given task.

In keeping with self-efficacy research findings, once SPRING into Maths is up-and-running, several strategies can be used to improve students' self-efficacy beliefs in mathematics. Drawing on the four sources that influence self-efficacy beliefs, practitioners can enhance students' personal learning experiences by teaching them how to use a simple list of success criteria, and a self-evaluate prompt to evaluate their learning (Siegle & McCoach, 2007). Second, to provide appropriate verbal feedback, practitioners can (a) teach TAs how to give students constructive feedback and feedforward, and (b) teach students how to engage in peer feedback processes (Siegle & McCoach, 2007). Third, to create appropriate 'ako' experiences, practitioners can encourage students to use the 'think aloud' strategy to describe and model how they problem-solved during the 'Reinforcing Strategy' stage. As Siegle and McCoach (2007) have explained, using processes like 'think-aloud' can provide students with valuable examples of how others overcome challenges.

The following section draws on the theoretical framework established above to present insights into the implementation of SPRING into Maths at Tamaki Primary from three different perspectives. The section focuses on providing insights into the decision-making processes and actions of (a) the Resource Teacher: Learning and Behaviour (RTLB) who acted as the Professional Learning and Development (PLD) provider, (b) the liaison RTLB, and (c) the Tamaki Primary School team - as captured through the lens of the Deputy Principal (DP) and Special Education Needs Coordinator (SENCO).

SETTING THE SCENE

The RTLB PLD Provider

The RTLB PLD provider first came across SPRING into Maths in 2013 while still in a full-time classroom teaching position. A small group of her students was struggling to operate at 'Advanced Counting', despite attempts being made to differentiate and adapt the classroom programme. In her role as a classroom teacher, the RTLB PLD provider conducted a teaching inquiry into Tier 2 maths programmes that could offer these students the additional support they required to make progress. She chose to trial SPRING into Maths because it included a set of structured and repetitive activities that focused on developing mathematical understanding through the use of equipment. The four students who participated in the SPRING into Maths

trial made accelerated gains and were able to maintain and build on their progress.

Since joining the RTLB Service in 2014, the RTLB in question has used the Gradual Release of Responsibility (GRR) model (Pearson & Gallagher, 1983) to introduce SPRING into Maths to teachers at an individual and school-wide level. In her experience, the GRR model allows RTLB to offer tailored support that can meet the individual professional needs of teachers and their students in any given context.

The professional experiences of the RTLB PLD provider suggest that when providing PLD, practitioners need to focus on securing buy-in from school leaders because as Harwell (2003) explains, the outcomes of any systems-level professional development initiative are determined by whether there is buy-in from the school's administration. Additionally, in her experience, the RTLB PLD provider has found that the decision-making processes and actions that underpin the implementation and monitoring phases of SPRING into Maths, to be crucial in determining successful outcomes.

The Tamaki Primary School Team – collated by the DP/SENCO

Tamaki Primary School's journey with SPRING into Maths began with one student. Ben⁵ was experiencing learning difficulties which seriously affected his progress. His teacher had put a variety of Tier 1 and 2⁶ strategies in place to assist with his learning. After seeing no evidence of progress, the decision was made to seek RTLB assistance.

The Liaison RTLB

The school's liaison RTLB was allocated Ben's case, thus becoming Ben's caseworker. After initiating the RTLB practice sequence, the challenges Ben faced around participation and contribution, and the learning gaps in his mathematical understanding, became a shared concern among all the key stakeholders. The caseworker/liaison RTLB came across SPRING into Maths during her postgraduate studies and immediately recognised its potential as a Tier 2 intervention for Ben. While she was researching about SPRING into Maths, a timely PLD opportunity presented itself through a cluster-wide initiative led by her colleague, the RTLB PLD provider mentioned above. During Ben's collaborative action planning meeting, the decision was made to have Ben's TA attend the SPRING into Maths PLD with the liaison RTLB/caseworker.

⁵Pseudonym

⁶Brown-Chidsey & Steege (2010).

The three practitioner journeys presented above begin to intersect at this point. The following section focuses on providing insights into their collaborative partnership which led to the implementation of SPRING into Maths at Tamaki Primary School.

SPRING INTO MATHS AS A TIER 2 MATHS INTERVENTION AT TAMAKI PRIMARY SCHOOL

After attending the RTLB-led PLD, Ben received several weeks of SPRING into Maths sessions before there were some timetabling clashes. As a result, Ben's learning was interrupted at a time when he had begun to make promising progress. Motivated by the impact SPRING into Maths was having on Ben's learning, the TA who facilitated the sessions requested support to address barriers to consistent implementation that had arisen. The DP/SENCO initiated a discussion with the school TAs and the liaison RTLB. The following factors influenced the school's decision to embark on SPRING into Maths as a systems-level intervention:

- The lack of sustainable outcomes from previously trialled Tier 2 interventions
- Prior engagement with Cluster 8 SPRING into Maths PD in 2016 resulting in buy-in from a TA and visible gains, which generated further interest among staff – "Could this work for other students?"
- Access to a second opportunity to attend PLD
- Inclusion of maths equipment
- Use of sequential activities that can guide teaching and learning

In essence, at this point, the focus shifted from a single referral student to considering SPRING into Maths as a Tier 2 intervention across Tamaki Primary School. As a result, the school chose to send all its TAs and the DP/SENCO to the next round of RTLB-led SPRING into Maths PLD. The decision to extend the school's understanding of SPRING into Maths positioned the school team, comprising of the TAs, DP/SENCO and the liaison RTLB, as 'akonga'⁷ alongside their students.

Research has demonstrated that reflective practice can enhance student learning and the professional learning and practice of teachers (Zalipour, 2015). The four-phased 'experiential learning cycle' model, developed by Kolb (1984), was used throughout this PLD project. More specifically, the second phase of Kolb's model - where the learner observes and reflects on the experience of learning and also responds to it - has a direct bearing on reflective practice as it can lead to self-awareness, change of behaviour, and the

acquisition of new skills (Zalipour, 2015). In keeping with the second phase of Kolb's model, presented below, are the observations, reflections and actions of the RTLB PLD provider and the school team at crucial stages of the second round of the cluster-wide SPRING into Maths PLD, and the follow-up school-wide PLD.

The Characteristics of the RTLB-led SPRING into Maths PLD Delivery

Stage 1

The RTLB PLD Provider. Roberts (2008) has provided a clear overview of SPRING into Maths - and a material master which identifies the relevant maths equipment required to run the intervention. To make the material master more accessible to schools within a digital context, the RTLB PLD provider has updated the material master to include hyperlinks to the appropriate resource templates from the nzmaths.co.nz website.

Additionally, the first workshop within this round of cluster-wide PLD included three key focus areas, designed to enhance the process of unpacking SPRING into Maths.

Key Focus 1: Activating Knowledge, Facilitating Interaction and Making Connections. The workshop began with a round of table-talk to enable participants to:

- Reflect on their SPRING into Maths related prior knowledge and experiences
- Identify the challenges they were facing around providing maths support for priority learners
- Consider the strengths they brought and identify the challenges they wanted to attempt to overcome through the PLD

Key Focus 2: Roles and Responsibilities. In her overview, Roberts (2008) draws some attention to the role of the teacher and TA. The RTLB PLD provider focused on placing greater emphasis on the role of the teacher and the TA to support schools establish clear roles and responsibilities from the outset. For example:

- Who will provide TAs with the training they require to run the sessions?
- Who will organise the resources?
- Who will time-table the sessions?

⁷ In te ao Māori, the concept of akonga can mean students or learners (New Zealand Curriculum Guides).

Key Focus 3: Assembling the Kits and Getting to Know the Resources. Mathematical equipment (concrete materials) plays a vital role in enabling students to improve their mathematical learning through SPRING into Maths. Although many practitioners accept the relevance of including maths equipment in an intervention like SPRING into Maths, only a handful of practitioners appear to have the confidence to make proper use of mathematical equipment in their teaching. There is no New Zealand-based research to support this claim, however a Western Australian study involving eight hundred and twenty teachers from across two hundred and fifty primary schools uncovered that, although 95 percent of teachers believed that maths equipment enhances student learning, less than 10 percent had received training on how to use maths equipment (Marshall & Swan, 2008).

To support practitioners in their use of mathematical equipment, the PLD was designed to enable participants to explore some different pieces of maths equipment and consider how each item could be used to support students' development of various mathematical concepts. Participants also received access to a shared resource that offered further suggestions on how to use different types of mathematical equipment in a range of ways across the different SPRING into Maths activity components.

The School Team. In this instance, the school team comprised of TAs and the DP/SENCO. After attending the first PLD workshop, the DP/SENCO and TAs worked together to develop a shared understanding of SPRING into Maths. They developed a shared understanding by reviewing the PLD material and engaging in discussions focused on clarifying and making connections. Working together to unpack the material presented at the first workshop helped the TAs to consolidate their learning. The collaboration also resulted in the TAs starting to feel excited about being better-equipped to offer students support with mathematics.

Stage 2

The RTLB PLD Provider. The second PLD session provided two concurrent workshops. The purpose of the two workshops was to promote clear roles and responsibilities that could lead to more effective implementation. One of the prerequisites for attending this PLD was that each school had a school leader attend all the sessions alongside the TAs. The RTLB PLD provider led the workshop for the school leaders who focused on:

 Conducting the diagnostic assessment and making important anecdotal observational notes

- Analysing individual student's needs, and then looking for similarities and differences in strengths and challenges across the group
- How to make appropriate planning decisions that take into account each student's ZPD
- The types of equipment that could help students develop the gaps in their learning
- The daily progression of the planned S.P.R.I.N.G. activities, and throughout the week

The RTLB PLD provider's Practice Group Leader (PL) led the workshop for the TAs who focused on:

- Setting-up and facilitating SPRING into Maths sessions
- · How to observe and make relevant anecdotal notes
- Using a range of maths equipment in different contexts

The School Team. After attending the second workshop, the school team focused on reviewing the SPRING into Maths kits and experimented with the equipment. The focus on maths equipment enabled the TAs to develop greater confidence in their ability to support students use maths equipment more effectively in a range of mathematical contexts.

The prerequisite condition for school leadership involvement in this PLD led to a discussion with the principal about the significance of providing leadership support to ensure effective implementation and sustainability of any school-wide system. As such, the school's management team made a conscious effort to maintain leadership involvement throughout this project.

In addition to supporting the transferral of PLD, leadership support was required to address some of the potential barriers that were likely to impact on the implementation of SPRING into Maths at Tamaki Primary. For example, the DP/SENCO focused on finding solutions to timetabling issues by developing a calendar that included all school-wide/year-group events for each term and attendance tracking sheets. The TAs used these tracking sheets to monitor the attendance of their students and looked for opportunities to schedule alternative sessions. These systems helped with tracking the implementation process.

Stage 3

The RTLB PLD Provider. The final workshop focused on providing participants with further assistance to ensure that they were able to run SPRING into Maths sessions using formative assessment processes to track

student progress and adjust the planned activities. The session concluded with a focus on how to include some strand-based concepts and word problems into SPRING into Maths.

The DP/SENCO from Tamaki Primary was not able to attend this final workshop. The RTLB PLD provider offered to run an alternative session at the school because evidence suggests that PLD is more likely to lead to a positive outcome when school leaders are actively involved in professional learning initiatives (Timperley, Wilson, Barrar & Fung, 2007). Furthermore, from a future-focused perspective, the RTLB PLD provider saw value in supporting Tamaki Primary School because she knew there was buy-in from the leadership team as they had identified maths as an area of need and expressed a "... shared sense of need for change" (Harwell, 2003, p. 2).

After running the personalised PLD session, further discussions led to the realisation that Tamaki Primary would benefit from ongoing RTLB support through a new school-wide project, tailored to meet their specific needs. From an RTLB service delivery perspective, consideration was also given to PLD research findings. For example, Bishop, Berryman, Powell & Teddy (2007) have demonstrated how PLD can be more effective when PLD providers offer teachers adequate and ongoing support to make modifications to their practice.

The School Team. In retrospect, a significant catalyst towards the successful implementation of SPRING into Maths at the school was the offer of further needsbased PLD. The school team had never experienced RTLB-led PLD that was responsive to this extent. The RTLB PLD provider facilitated professional collaboration and reflection throughout the PLD process which helped to build the school's capacity to implement and sustain SPRING into Maths as a Tier 2 intervention.

Stage 4

The RTLB PLD Provider. During the implementation and monitoring phase, the RTLB PLD provider and the liaison RTLB set-up regular follow-up meetings with the school team, and provided advice and guidance around:

- Using formative assessment to develop three-week planning cycles
- Modifying SPRING into Maths activities to meet specific student's needs
- Encouraging critical thinking around the developmental sequence of mathematical concepts

- Encouraging critical thinking around the use of mathematical equipment
- Implementing effective feedback routines
- Supporting the team to reflect on their professional learning experiences and develop appropriate nextsteps
- Providing TAs with modelling of how to conduct the sessions
- Providing TAs with opportunities to observe effective maths lessons
- Providing opportunities for TAs to observe each other, and to have professional conversations focused on their learning

The School Team. After the initial in-house PLD sessions, the assessment component of SPRING into Maths became the focus. The school team viewed two of the video assessment examples used during the second workshop, of a TA and teacher assessing two students. Throughout the viewing, the video was paused for discussion, for example, to explore the various strategies each assessor used to elicit evidence from the students. The next step involved getting a list from classroom teachers of potential priority learners who would benefit from SPRING into Maths.

Using the list provided by the teachers, the DP/SENCO began to withdraw individual students to model the assessment process to TAs as a group, stopping to clarify and explain each part of the assessment. Next, the DP/SENCO provided each TA with a one-to-one modelling session. Having the DP/SENCO carry out this part of the training process was important as the TAs were comfortable in asking questions throughout the process. After the modelling sessions, the TAs were allowed to take turns at carrying out an assessment with a buddy TA and the DP/SENCO acting as peer observers. The principle of 'ako' was made evident in the peer observation process as the TAs' mindsets shifted from that of being embarrassed and insecure to that of 'being a learner', and understanding and experiencing the benefits of constructive feedback.

After data collection, the RTLB PLD provider helped the school team to develop effective assessment analysis techniques for SPRING into Maths. For example, there was a focus on streamlining the assessment data to align with the S-P-R-I-N elements of SPRING into Maths. To achieve this, the DP/SENCO digitised the assessment analysis sheet. Next, the RTLB PLD provider modelled the process of how a student's datum could be unpacked in keeping with each element of the assessment, explaining the meaning behind each section and how to interpret the data.

During this session, the RTLB PLD provider also used a 'think aloud' approach to demonstrate, for example, how the assessment information could be used to map students' strengths and challenges, establish flexible groupings, and make decisions about how to promote cooperative learning skills among each student group. Following this, the school team worked in pairs to unpack the remaining students' data.

After completing data analysis, the RTLB PLD provider led the school team through the planning process, focusing on (a) finding commonalities among students' strengths and challenges, (b) looking to address the discrepancies, and (c) tailoring the activities to meet the individual needs of particular students within each target group. After this session, the school team felt that the TAs would be better-equipped to run SPRING into Maths if they had further professional development around how students are likely to develop mathematical concepts. For example, the TAs needed to understand how the art of counting leads to the art of grouping (part-whole thinking).

During the session focused on developing mathematical concepts, the RTLB PLD provider demonstrated how the school team could support students by considering the progressions between the S-P-R-I-N activities and then how each element of SPRING may develop across several weeks. An example of this was if a student was working on counting forward to ten in the first week: once they were secure in that, where to next within the planning cycle?

The school team learned how to take each student's needs, and pace of development, into consideration when planning SPRING into Maths activities. Additionally, the RTLB PLD provider drew attention to how decision-making during the planning process requires careful consideration to ensure that each student receives support, not only to fill the gaps in their understanding but also to consolidate new learning and build on their strengths.

Overall, this RTLB-led PLD led to the TAs learning how to adjust the complexities of a given task to offer students the scaffolding they required to operate within their ZPD. This new learning resulted in the TAs developing greater confidence in their ability to support students make progress in mathematics.

Stage 5

The RTLB PLD Provider. During the post-data gathering and analysis, the school received support to develop a data analysis method that could adequately capture individual students' progress and achievement within the context of SPRING into Maths. The school was later offered further support and guidance to

reflect on their overall experiences and make any required modifications to ensure sustainability.

The School Team. SPRING into Maths resulted in positive teaching and learning outcomes at Tamaki Primary School. After implementing the programme across the school, the twelve target students from the junior school made positive gains, with many showing accelerated progress. Of the twelve students, seven moved up a numeracy stage; one student moved up two stages while another student moved up three stages. It is interesting to note that four out of these twelve students were ESOL learners, and another four were students who had learning needs.

Three out of the twelve junior school students did not show progress by moving up a stage within this timeframe. A more in-depth analysis revealed that these three students made considerable gains within their operating stage. For example, one student progressed from counting to a hundred to being able to count to one thousand. Further investigation revealed that these three students had regular absences which are likely to have impacted on their achievement data.

Out of the five target students from the senior school, one student moved up a numeracy stage while the other four made considerable gains within their operating stage. Further analysis into the discrepancies in progress between the junior and senior school revealed that, when compared with the number of sessions run in the junior school, scheduled school events resulted in the senior students receiving fewer sessions.

STRENGTHS AND LIMITATIONS

The positive outcomes outlined above resulted from the following approaches taken during implementation:

- Leadership involvement throughout the project
- The PLD delivery approach and the provision of ongoing support
- Collaborative problem-solving
- The co-construction of knowledge and understanding
- The linking of assessment and subject-specific knowledge with pedagogy to plan activities that were in keeping with each student's ZPD
- Focusing on the transferral of knowledge from a small group context to the whole class setting
- Scaffolding TAs professional development through modelling, observations and feedback
- Involving the liaison RTLB in the PLD

The school team faced several staffing challenges along the way. The resignation of a TA posed the first challenge toward sustainability, as she had the most experience with the programme. The school took steps to enable the remaining TAs to learn with and from this TA. As a result, the TAs were able to assemble the kits and develop systems to manage their part in the rollout. For example, they worked collaboratively to establish a process for using the student attendance sheet, planning documents and progress monitoring templates.

The most significant challenge to programme sustainability came after the rollout. The DP/SENCO secured a principalship at another school. To assist with the handover, the Cluster 8 RTLB service offered further support through ongoing liaison RTLB guidance, and a review and planning meeting focused on providing the new DP, and all key staff, an opportunity to reflect on the school's journey with SPRING into Maths, plan next steps, and renegotiate their roles and responsibilities to ensure sustainability.

In conclusion, this article has made a valuable contribution to the limited body of existing literature around SPRING into Maths. Additionally, the authors have provided an example of how a collaborative approach can bring together practitioner strengths and improve the overall sustainability of school-wide initiatives.

REFERENCES

- Alton-Lee, A., Westera, J., & Pulegatoa-Diggins, C. (2012). *BES exemplar 4: Reciprocal teaching.* Wellington, New Zealand: Ministry of Education.
- Anderson, L. (2012). How are schools addressing the needs of students who are not progressing as expected in mathematics? Te Kopuru School. *Principal's Sabbatical Report.*
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York: W. H. Freeman.
- Bishop, R., Berryman, M., Powell, A., & Teddy, L. (2007). Te kotahitanga: Improving the educational achievement of Māori students in mainstream education. Phase 2: Towards a whole school approach. Wellington: Ministry of Education.
- Brown-Chidsey, R., & Steege, M. W. (2010). *Response to intervention: Principles and strategies for effective practice*. New York: Guilford Press.
- Bruner, J. (1978). The role of dialogue in language acquisition. In S. R. J. Jarvella & W. J. M. Levelt (Eds.), *The child's conception of language (pp. 214-256)*. New York: Max-Plank-Institut for Psycholinguistik.

- De Guerrero, M. C. G., & Villamil, O. S. (2000). Activating the ZPD mutual scaffolding in L2 peer revision. *The Modern Language Journal*, 84, 51-68.
- Harwell, S. H. (2003). *Teacher Professional Development: It's not an event. It's a process.* Texas, US: CORD.
- Kolb, D. A. (1984). Experiential learning: Experience as a source of learning and development. Englewood Cliffs. NJ: Prentice Hall.
- Macfarlane, S., & Macfarlane, A. (2013). Culturally responsive evidence-based special education practice: Whaia ki te ara tika. *Waikato Journal of Education*, 18(2). Retrieved from: http://www.wje.org.nz/index.php/WJE/article/download/162/147
- Mackay, K. (2016). *Primary Principal's Sabbatical Report*. Greytown School.
- Marshall, L., & Swan, P. (2008). Exploring the use of mathematics manipulative materials: Is it what we think it is? *EDU-COM 2008 International Conference. Sustainability in Higher Education: Directions for Change.* Perth Western Australia: Edith Cowan University. Retrieved from: http://ro.ecu.edu.au/ceducom/33
- Ministry of Education (1992). *Mathematics in the New Zealand curriculum*. Wellington: Learning Media.
- Ministry of Education (2009). Te aho arataki marau mo te ako i te reo Māori - kura auraki: Curriculum guidelines for teaching and learning te reo Māori in English-medium schools: Years 1 - 13. Wellington, New Zealand: Learning Media.
- Palincsar, A. S. (1998). Social constructivist perspectives on teaching and learning. *Annual Review of Psychology*, *49*(1), 345-375. doi:10.1146/annurev.psych.49.1.345
- Pearson, P. D., & Gallagher, M.C. (1983). The instruction of reading comprehension. Contemporary Educational Psychology, 8, 317-344.
- Roberts, J. (2008). *SPRING into Maths*. Wellington: Vicotria University.
- Russek, A. (2012). Initiatives to enhance the learning of maths for at risk year 2-4 students. Dargaville Primary School. *Principal's Sabbatical Report.*
- Siegle, D., & McCoach, D. B. (2007). Increasing student mathematics self-efficacy through teacher training. *Journal of Advanced Academics*, *18*, 278–312.
- Stevens, T., Olivárez, A. Jr., & Hamman, D. (2006). The role of cognition, motivation, and emotion in explaining the mathematics achievement gap between Hispanic and White students. Hispanic Journal of Behavioral Sciences, 28, 161–186.

Timperley, H., Wilson, A., Barrar, H., & Fung, I. (2007). *Teacher professional learning and development. Best evidence synthesis iteration.* Wellington: Ministry of Education.

Vygotsky, L. S. (1978). *Mind in society: The development of higher physiological processes.* Cambridge, MA: Harvard University Press.

Zalipour, A. (2015). Reflective practice: Teaching development unit. Retrieved from: https://www.waikato.ac.nz/ data/assets/pdf_file/0006/360861/Reflective-Practice-June-2015.pdf.

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Druinie joined the Cluster 8 RTLB service in 2016. Since then, she has focused on working collaboratively with schools to improve sustainable student-teacher outcomes through teacher professional development initiatives. Druinie is currently completing a contract as a Literacy Consultant with Sheena Cameron and Louise Dempsey.

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Michelle is now principal of Nga Iwi School in Mangere. She has been a passionate educator for more than 25 years. Her leadership focuses on using collaborative processes to develop culturally-responsive practice. Michelle's strengths are in using an inclusive, future-focussed lens to empower all learners to fulfil their potential.

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Dianne is working as an RTLB in Cluster 8, Central Auckland. She has experience as a primary school SENCO, senior leader, pre-service teacher educator, and in-service PLD provider. She is passionate about collaborating with educators in developing strength-based practices. Dianne has recently completed a Postgraduate Diploma in Specialist Teaching.

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