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- Think pieces with a maximum of 1500 words.
- Commentaries on management matters with a maximum of 1500 words.
- Book or resource reviews with a maximum of 1000 words.

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Editor reviewed

A data-informed look at how sustained shared thinking can promote child learning and progress

Tara McLaughlin, Sue Cherrington, Lynda Hunt, Vicki Gifkins, Karyn Aspden, Claire McLaughlin, Linton Kindergarten, and Makino Kindergarten.

Sustained shared thinking is a pedagogical strategy strongly associated with high-quality early childhood education (Meade et al., 2013; Siraj-Blatchford, Sylva, Muttock, Gilden & Bell, 2002). The term sustained shared thinking was coined within the Effective Pedagogy in Preschool Education (EPPE) longitudinal study in the UK to describe "an episode in which two or more individuals 'work together' in an intellectual way to solve a problem, clarify a concept, evaluate activities, extend a narrative etc. Both parties must contribute to the thinking and it must develop and extend thinking." (Siraj-Blatchford et al., 2002; Sylva et al., 2004).

Sustained shared thinking is described in Te Whāriki (2017) on page 50 where it says:

> *"Kaiako encourage sustained shared thinking by responding to children's questions and by assisting them to articulate and extend ideas. They assist them to take advantage of opportunities for exploration, problem-solving, remembering, predicting and making comparisons and to be enthusiastic about finding answers together. They encourage children to know what is happening and why."*

From 2019 to 2021 we undertook a Teaching and Learning Research Initiative (TLRI) project focused on using data-informed teaching to support kaiako to explore and strengthen their use of sustained shared thinking to deepen young children's learning. The project described in this article is part of the *Data, Knowledge, Action* programme of research. Information about the data systems and processes that were used is available in Hunt et al., 2020; and McLaughlin et al., 2020 and 2022. The present article focuses on the ways in which kaiako used data tools and how sustained shared thinking impacted child learning and progress.

Within the context of our TLRI project, we described sustained shared thinking as an in-

depth sustained interaction in which both kaiako and child contributed ideas and worked together in an extended way to advance the child's thinking and learning. Across the interaction, teachers draw on a range of pedagogical strategies to support the child's thinking and learning in a conceptually deep and extended way. The interaction has flow that engages both parties in a meaningful way.

The descriptions of sustained shared thinking above have a primary focus on the nature or pattern of interactions with an emphasis on the role and actions of kaiako. A brief mention of the potential benefit to children is included. Often, sustained shared thinking is associated with a focus on children's language and thinking skills. However, our TLRI research showed how the depth and complexity of sustained shared thinking as a pedagogical strategy could be used to support children's learning across the curriculum, inclusive of learning outcomes associated with well-being, belonging, contribution, communication, and exploration.

On reflection, we believe the power of sustained shared thinking as a pedological strategy was enhanced by data-informed teaching. The explicit use of multi-method data gathering tools supported kaiako to collect unique information about children and their own practice and combine this new knowledge with what their team already knew, including knowledge gained through their partnerships with families, to build a comprehensive picture of children's learning and experiences. The use of data enabled teams to better support individual children through enhanced differentiation of learning opportunities and more nuanced individualised planning. Kaiako reported they were more intentional and focused in their support for children and their ability to create meaningful opportunities for learning and to extend children's interests. Early data provided a useful marker of children's capabilities and ideas that enabled kaiako to look back and reflect on how far children's learning had progressed. In the words of one of the kaiako:

> *[Data-informed teaching] is a really non-threatening process and it's all about positive and positive steps for you and the children. The scope for new learning is phenomenal and being open to that and realising that it is not in any way negative, it's a positive from the get-go.*

A complete summary of our TRLI project is available on the TLRI website (see McLaughlin et al., 2022). The remainder of this article focuses on the experiences and stories of kaiako as they supported specific children. These descriptive case stories illuminate just two examples of the many positive outcomes experienced by tamariki, whānau, and kaiako during the study. A key feature of these descriptive stories is that the details about the children represent data-informed insights gathered and collated from a range of formal and informal methods over time. Within the stories, data are used to inform planning and key teacher actions to support child learning. The following two case stories provide insights into the potential of sustained shared thinking and how different data sources can inform teacher practice and enable better understanding of children's learning and progress.

Strengthening language and communication for David: Linton Kindergarten

By Sherrie Gilberd, Jessie King, and Sarah Goacher with support from Lynda Hunt

At the beginning of this study, we were a recently formed teaching team that was made up of two experienced kaiako and one new PCT kaiako. Sustainability is embedded in all that we do and being a Silver Enviroschool reflects this. With support and participation from whānau, hapori and kaiako, tamariki are empowered to be involved, to learn and to understand the important role that we all play in caring for our environment. Our kindergarten philosophy centres around the values of Ako, Kaitiakitanga, Whanaungatanga and Manaakitanga. The project provided a new opportunity for learning about sustained

shared thinking and using new tools to gather information about tamariki. We had a lot of learning and some very exciting moments with children during the project. One child that stands out for us is the learning for David.

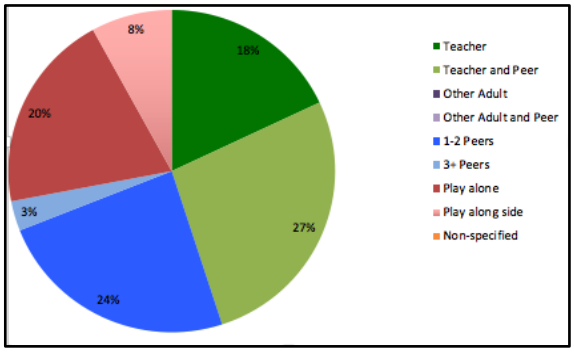
David was 3 years 7 months at the start of the project and had been referred to the Ministry of Education (MOE) early intervention service for language delay, with other areas of developmental delay evident. David was allocated learning support hours prior to the start of the project. At the start of the study, David communicated using one-word utterances and gestures, and many of these were difficult to understand. He often became frustrated when he couldn't make himself understood or when things weren't going his way. When upset he often responded with a high-pitched squeal which was sometimes followed by a period of withdrawal where he took himself away and spent time by himself.

David needed teacher support to part from his family at the beginning of the day. He frequently sought out the company of kaiako, often helping with jobs where a teacher was present (e.g., gardening). His engagement was limited to a few curriculum areas including playdough, the block area, playing with cars or trolleys and the gardens. He was likely to give up or walk away from difficulties that arose rather than persevere or problem-solve.

A closer look at the data

Child experience data, which was collected by a non-teaching observer, was gathered for David at the start of the project. Data from the 2-hour observation showed David as a learner who mostly spends time alone, alongside other children or in presence of a teacher as seen in Figure 1.

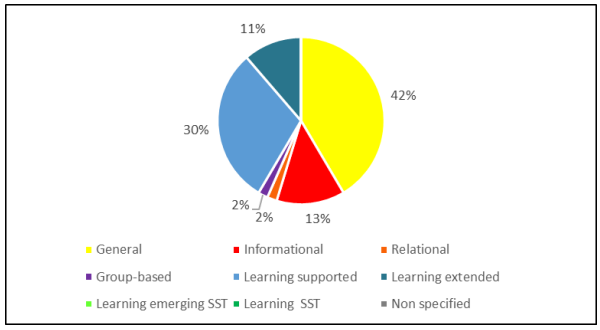
Figure 1. Percent of time spent with others



As seen in Figure 1, over the observation David spent 18% of his time with a teacher and 27% with a teacher and other peers, so was with a teacher 45% of his total time. Twenty percent of his time was spent playing alone and 8% playing alongside peers. He spent 24% of his time working with 1 or 2 peers and 3% with 3 or more peers. David spent most of the observation engaged in 6 activities and five of these were with or near a teacher. Playdough was the only activity he chose with no teacher present.

Figure 2 shows the nature of teacher-child interactions during the 2-hour observation with data and observations notes showing that most interactions with David were brief.

Figure 2. Types of teacher child Interaction



As shown in Figure 2, of the 53 interactions 42% of teacher interactions with teachers were coded as general. These included brief comments, questions or responses from teachers. Thirty percent of teacher interactions supported his learning by repeating and modelling words or reinforcing concepts with David. Eleven percent of teacher interactions further extended his learning and knowledge

e.g., building on his understanding of concepts. There were no sustained shared interactions coded in the observation.

GoPro footage was taken on the same day as David's child experience observation. The video footage at the start of the project showed David spent time with all three teachers and he initiated some teacher interactions. His attention was often focused on interacting with the teachers even while working with peers. He communicated with one-word utterances, several of which were unclear and not understood by the teacher.

To further understand key aspects of David's learning we completed the social-emotional and communication and oral language section of a project-developed child profile for David at the start of the study. We did this individually and then came together to discuss his learning as a team. On reflection, our head teacher noted that *"The child profile pulled out quite specific things that I'm not sure we would have covered if we'd just said in a staff meeting well, you know, what does he need support with."*

Planning for David

Because David was a priority learner, we met regularly with David's family and MOE team members in IEP meetings to set learning goals for David. The additional information from this project was useful and contributed to goal setting for David's learning in the IEP meetings. We also included ongoing regular planning for David's learning as part of our team planning. The main focus of David's individual planning centred on language and communication, self-care skills, social and emotional learning and David's transition to school.

Throughout the TLRI project we also had team action plans to support our use of sustained shared thinking. Many actions were particularly relevant for David's learning. Our team's initial action plan focused on introducing strategies to promote language and literacy development. The second action plan focused on supporting learning and critical thinking through investigation and exploration using scientific/problem-solving approaches. The third action plan focused on supporting social and emotional learning with a focus on learning about a range of emotions. Supports that were embedded for David from team planning, in conjunction with the MOE support he received, are described below.

Our initial action plan included a focus on embedding the strategies associated with the Oral Language and Literacy initiative (OLLi) including using books to spark conversations, extending the length and number of interactions and modelling language use. We encouraged David to use two-word utterances and ensured he was exposed to a language-rich environment. We also explored the use of alternative communication supports, for example, picture boards, sign language and gestures to increase David's communication with others.

Another team action plan over the study focused on the social and emotional learning of tamariki. Team actions over this plan supported David to express and regulate his emotions, learn how to gain the attention of peers and to work in a group. Other strategies that were incorporated into action plans also supported David's learning. When focusing on scientific thinking, we began increasing the wait time that children were given after asking them a question. This was key and enabled David the time he needed to respond.

Inclusive sustained shared thinking

Over the study, we worked with an inclusive approach that encouraged all tamariki with opportunities, regardless of language delays or difficulties, to engage in sustained shared thinking, share their ideas with teachers and peers, and expand their oral language and thinking skills. To do this we expanded our skill sets and ideas of what might become a powerful learning interaction. One of the ways we did this was shared with us by one of the researchers as part of feedback following a formal end-of-project observation. This moment captures an example of the way we

made engaging in sustained shared thinking accessible to all children, including David.

The researcher recorded and shared the following interaction involving David, a teacher, and a small group of peers in the reading nook. "The teacher and tamariki were sharing a book together on the couch with specific strategies used to support engagement and language for David and his peers. At some point, a broken drainpipe to the water tank caught the attention of the children and the children were making close observations at the window. David used a range of language and gestures to express to the teacher his concern that it was broken and that water was being wasted, which was distressing from a sustainable perspective. The teacher responded with an open question to ask David, "What could we do to fix it?" And at this moment, David stopped moving, looked directly at the teacher, and then took a thinking pose, with one arm wrapped across his belly and a pointed finger resting against his chin (a body position he had seen modelled as a thinking position from this teacher before). His eyes moved from one side to another as he thought. The teacher held silently with an expectant and supportive look back at his thinking face.

As a few more moments passed, David had it, he changed positions and was at the teacher's side with an idea. "Ring, ring, ring, hello," he said. The teacher barely had time to look puzzled before he repeated it, "Ring, ring, ring, hello," while holding his pretend hand phone to his ear. "Oh," she said, "We can call someone for help." An enthusiastic nod from David, who said, "Dad" to which the teacher responded, "We can call your dad for help because he fixes things and he can help us fix it." A proud nod from David who looked very satisfied with his solution to the problem. To which the teacher said to the peers, "Hey guys, did you hear that David said we can call his dad for help and he can help us fix it" to which all the peers looked happy to have a solution to the problem and they all settled back into their story reading as the teacher said, "Thanks David, I'll call your dad this afternoon".

Having feedback from the formal observations was a useful process as there was so much that goes on during the day that recalling all of the details at the end of the day is not possible. Examples like these helped us know we were doing the things we wanted to be doing for tamariki.

David is a confident communicator

By the end of the project, David would happily say goodbye to Mum when she would leave, and he was well settled into activities without teacher support. He worked in a wider range of curriculum areas, including swinging and jumping, two areas he previously avoided. He approached peers with more confidence, played with peers more often and had begun to develop friendships at kindergarten. David had the confidence to come and try and tell us when things went wrong. He perseveres and he doesn't get frustrated and angry if we don't understand what he is telling us. He just keeps on repeating it until we get it. He's using lots more non-verbal cues to help us understand.

Strengthening language and emotional regulation for Kate: Makino Kindergarten

By Alison Robinson, Jenny Goodall, Lynda England, Amira Hume, and Sandra Shaw with support from Lynda Hunt

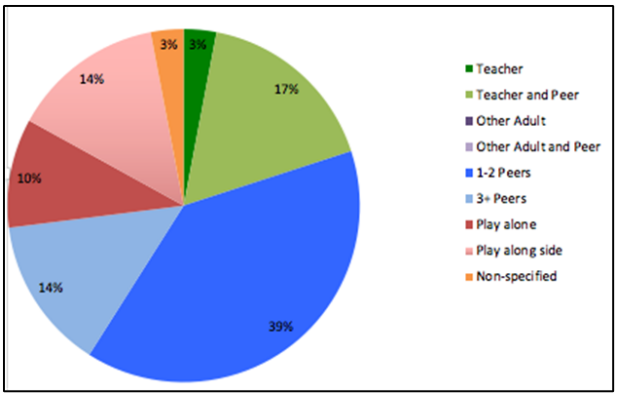
Makino Kindergarten serves tamariki and whānau from both rural and urban areas. At the time of the study, we were a team of five teachers with a range of additional adult supports provided through equity funding and local volunteering. The team placed a strong value on relationships and supporting children with their learning goals. The project offered us an opportunity for new learning and exploring new ways to strengthen our relationships with children and support their learning. We were surprised at how much we enjoyed using different data tools, each one offered something different. When reflecting on the learning for children, there were many stand-out moments, but we've picked Kate to share how important it can be to tune into children's emotions to better support their learning.

When the project began Kate was 4 years 7 months and sometimes found it difficult to part from Mum. Once settled, she enjoyed a range of imaginative and creative activities at kindergarten. If things went wrong, she experienced heightened emotions that she struggled to regulate. She relied on teacher support to calm down, discuss and resolve any issues she faced. She sometimes withdrew to quiet or enclosed spaces when she was emotionally overwhelmed. Family role-play dominated her activities, reflecting her strong links with her family. She was curious, imaginative, and creative in her play. She was sometimes hard to understand, especially when upset.

A closer look at the data

At the beginning of the project, child experience data, which was collected by a non-teaching observer, was gathered for Kate (see Figure 3). Kate spent 3% of the 2-hour observation working with a teacher and 17% of her time with a teacher and peers. Ten percent of her time was playing alone and 14% playing alongside peers. 39% of her time was spent with 1-2 peers and 14% with 3 or more peers. She was involved in 7 activities over the observation, many with an imaginative focus. Most teacher interactions with Kate were general (52%) with 29% providing her with information and 19% supporting her learning.

Figure 3. Percent of time spent with others



During the child experience observation, Kate also wore the GoPro video camera for over 40 minutes. This footage showed her engaged in dramatic and imaginative play, both with peers and on her own. She sometimes took on leadership roles and frequently interacted with teachers. She persisted without asking for help and showed responsibility by looking after herself, her peers and the environment.

We also completed the background information and communication and oral language sections of the project-developed child profile for Kate. These forms were initially filled out by one teacher and then discussed as a team. Taken together, the data sources helped us consider what new learning and experiences might build on Kate's wonderfully creative and imaginative play.

Planning for Kate

Toward the beginning of the project, we undertook individual planning for Kate. Planning focused on extending Kate's strengths by encouraging her leadership skills and relationships with peers. These plans incorporated family aspirations and learning goals that Kate had identified.

Kate was also actively engaged in learning associated with our team project action plan developed to support curiosity and problem-solving as part of supporting sustained shared thinking. This captured her imagination and positioned her in a leadership role as she helped solve the mystery of who was making tiny footprints around the kindergarten. She worked collaboratively with peers, shared her ideas and showed respect and empathy when she found who had made the footprints as she ensured no-one woke up the tiny figure responsible.

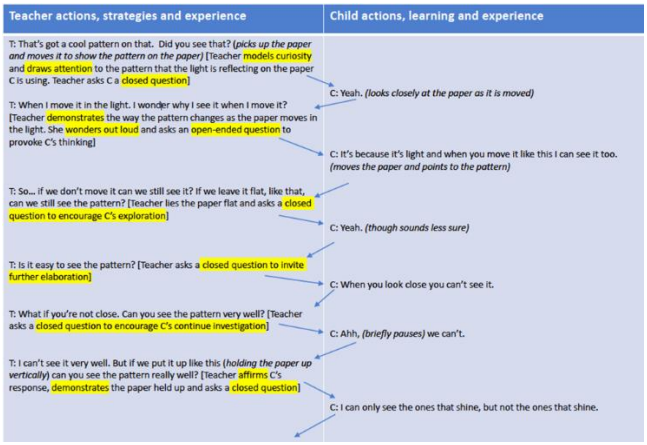
Individual planning within the context of exciting group activities focused on scaffolding Kate's ability to regulate her emotions and express her perspectives. This involved helping her to identify and name her emotions, practice calming techniques, express her feelings and articulate her viewpoint in situations that arose. Individual planning also focused on creating a range of leadership opportunities for Kate, affirming and extending her creative and

imaginative ideas and supporting her to share these with confidence. The team action plan built on Kate's individual planning by encouraging her to share her creative ideas, negotiate with peers and problem-solve. The multi-faceted focus between her need for support with emotions and creating opportunities to actively build on and use creativity required kaiako to use a range of different teaching strategies and be specific and intentional about how we supported her learning.

Seeing the intentional teaching in our interactions

As a team, we found the use of the GoPro, both with tamariki and ourselves, offered valuable insights into the learning that was occurring and our interactions around these. Doing the arrow analysis particularly shed light on the range of teaching strategies that we used. The arrow analysis was a process to break down a back-and-forth interaction between a teacher and child to illuminate the different ways teachers support learning in everyday interactions. Figure 4 is an example of an arrow analysis in which the specific teaching strategies are identified and highlighted by the team after re-watching a video of an everyday interaction.

Figure 4. Example of arrow analysis [Not an interaction with Kate].



In the case of Kate, we felt that all the intentional teaching strategies that we used to support her through the many emotional times built a solid foundation for her emotional resilience. Once she had improved her skills in this area it then opened those opportunities for her to lead her own learning and challenge herself.

Celebrating Kate's creativity and compassion

By the end of the study, Kate was expressing her feelings, needs and ideas and regulating her emotions using a range of positive strategies. Kate was more in tune with herself and the strategies she could use to help regulate her emotions in support of her own well-being. Her leadership skills were also highlighted as she shared these strategies with her peers. Her confidence and resilience had grown, enabling her to embrace new challenges with determination and perseverance in a wider range of activities at kindergarten.

Kate's growth in manaakitanga, particularly her leadership, empathy and kindness was evident in her interactions with her peers. Her celebration of learning story (the story written before her transition to school) highlighted this growth and the strengths and dispositions she gained over her time at kindergarten. Looking back on the story, we celebrated her creativity while also highlighting how the changes in her own emotional resiliency supported her compassion, empathy and understanding with her peers.

Summary

Sustained shared thinking can be a powerful pedagogical strategy that can be further enhanced when teachers use a range of observation-based data tools to gain new insights into children's learning and teachers' teaching. Within the context of our project, the focus on sustained shared thinking set the stage for kaiako to have meaningful and extended interactions with children to support their learning. The case stories shared here illustrate the type of nuanced understanding, planning, support and learning that is possible when teaching is data-informed.

Acknowledgement

The work described in these projects has occurred as part of an ongoing partnership with the Ruahine Kindergarten Association. Our sincerest gratitude to the teachers, leaders, children, and families for their collaboration and partnership on this exciting teaching and learning journey. Funding for this work was provided by the Teaching and Learning Research Initiative (TLRI) Fund.

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