

Using the data from the
Mathematics Assessment Interview
to improve first wave instruction

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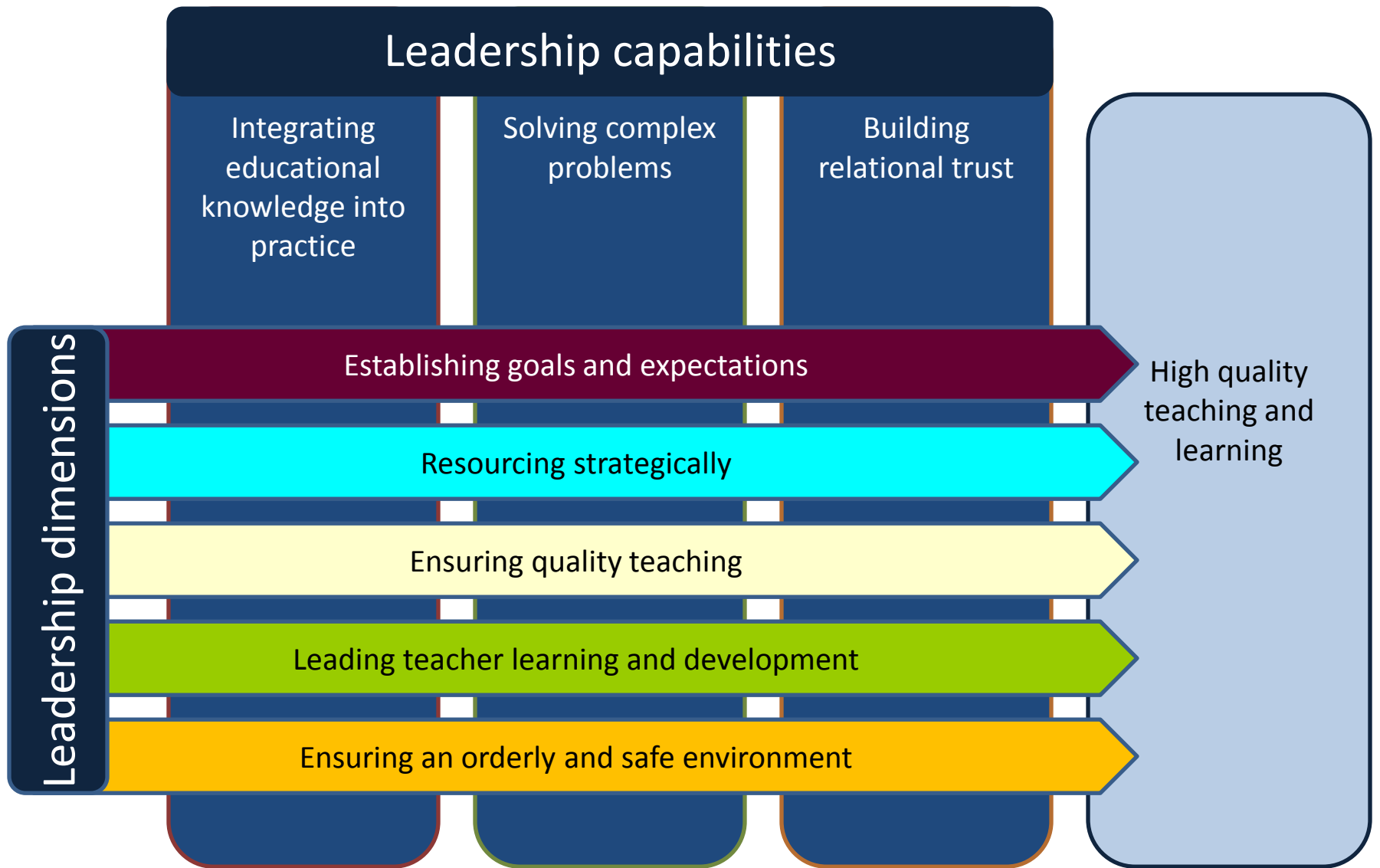
Broken Bay

- Broken Bay system of schools consists of 36 primary schools, seven secondary schools and one K-12 school.



Focus of *Leading Learning*

- Draws on research related to the five leadership dimensions (Robinson 2006, 2009, 2011)
 - To build system wide effectiveness in applying these leadership dimensions to Catholic school improvement within school teams in Broken Bay:
 - using context-informed strategic plans and annual SIPs
 - developing leadership capabilities that serve school improvement (applying relevant knowledge; building relational trust; solving complex problems)



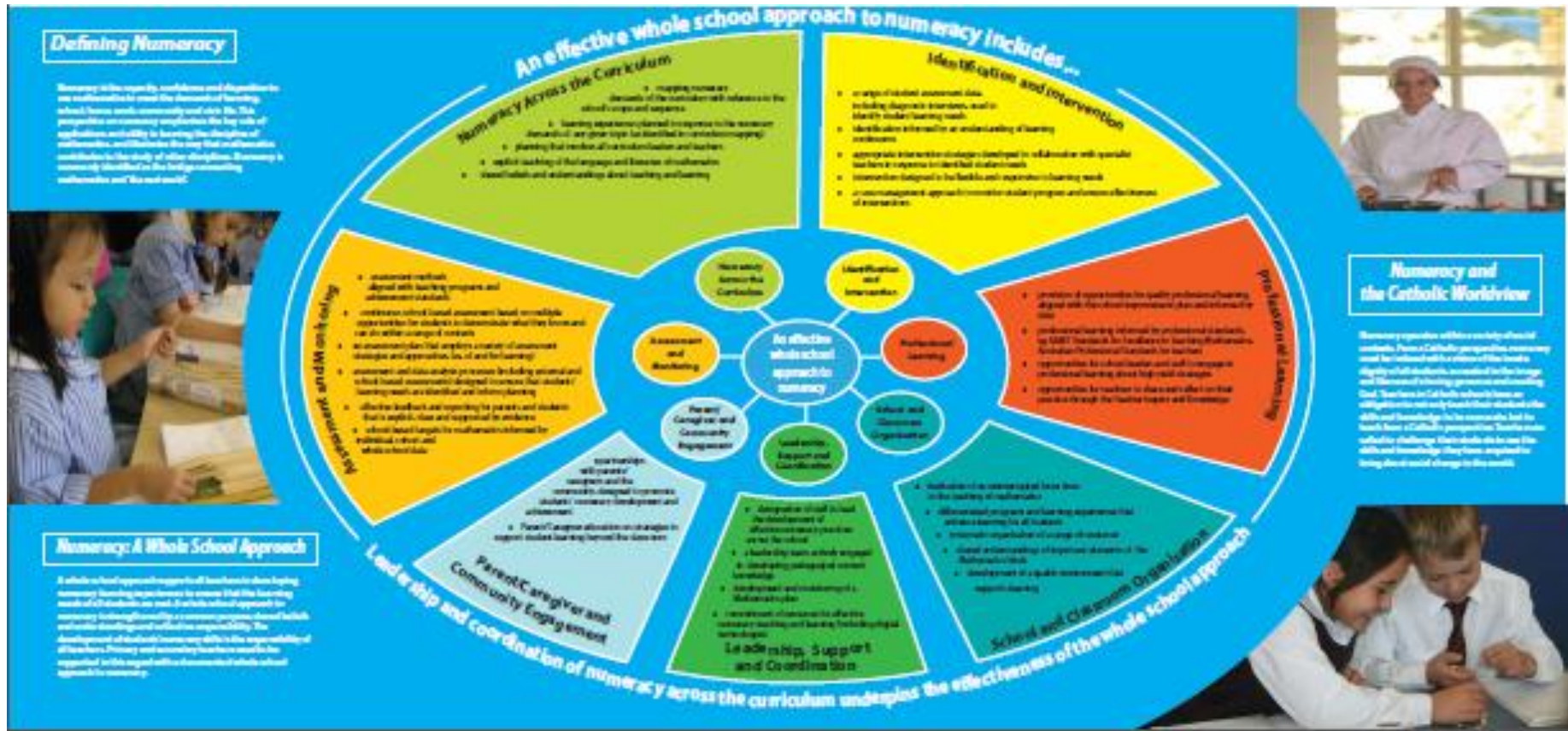
Source: Robinson, V.M.J., Hoepa, M., & Lloyd, C. (2009) School leadership and student outcomes: Identifying what works and why. Wellington: Ministry of Education

A Numeracy Statement for the Broken Bay Diocesan School System

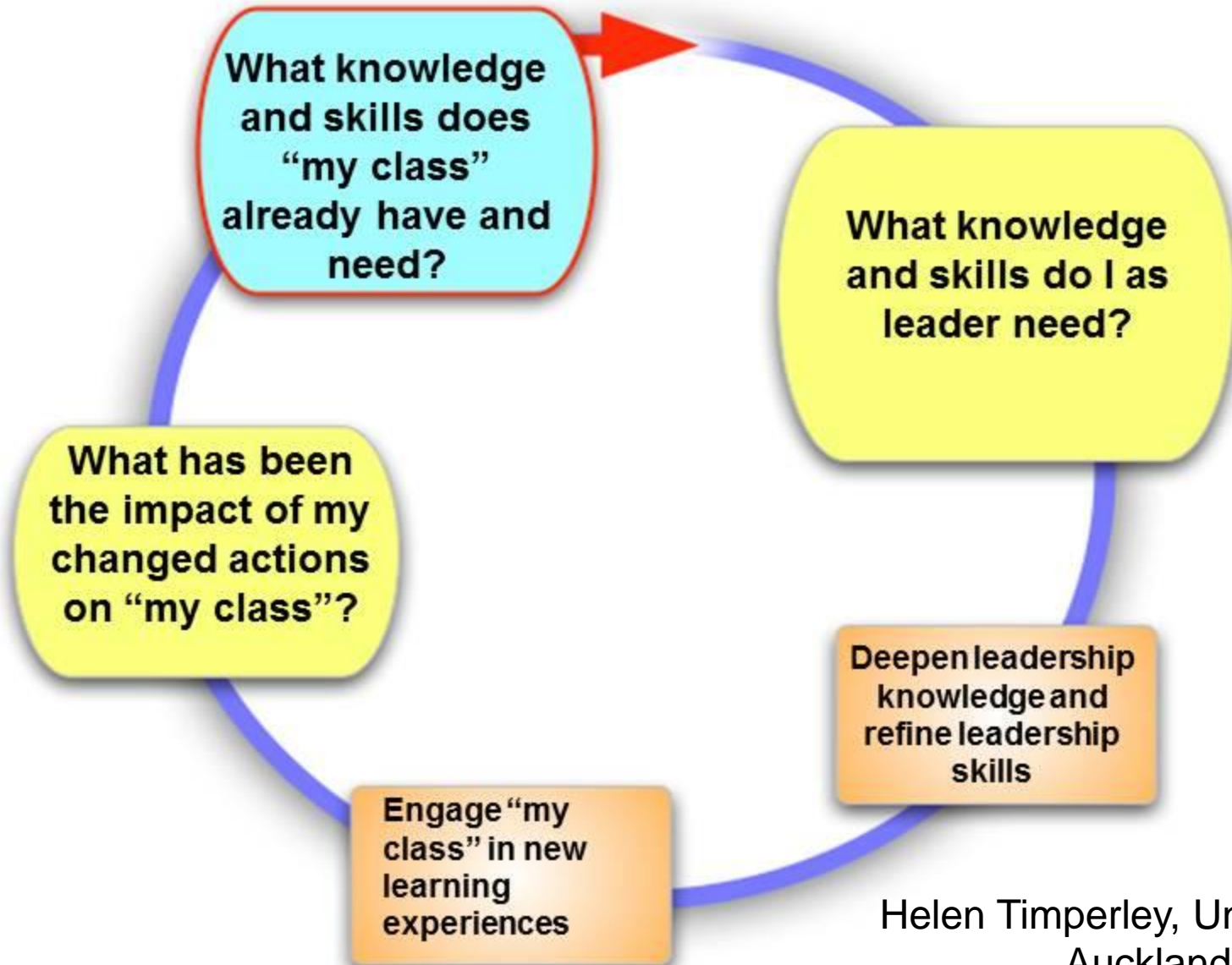
The Numeracy statement highlights that an effective whole school approach to numeracy includes strategic consideration of and targeted activity in the following areas:

- Identification and intervention
- Professional learning
- School and classroom organisation
- Leadership, support and coordination
- Parent/caregiver and community engagement
- Assessment and monitoring
- Numeracy across the curriculum

Extending Mathematical Understanding as a whole school approach



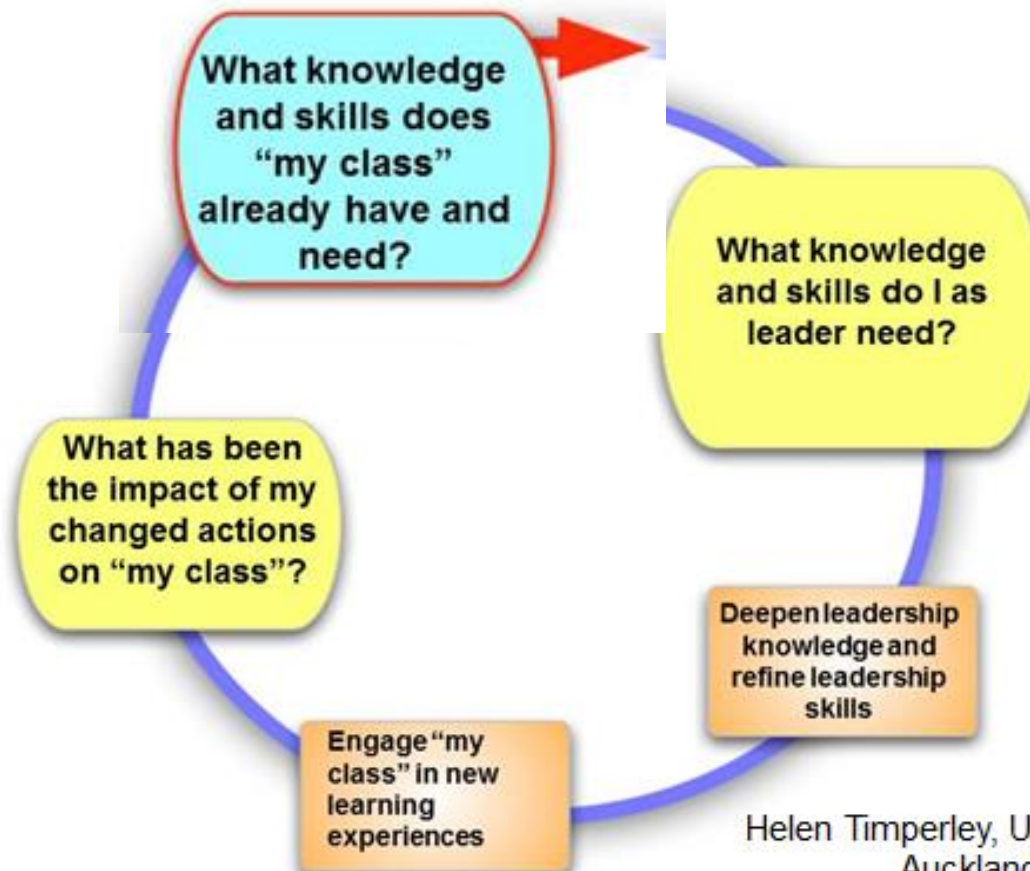
Leadership inquiry and knowledge-building cycle to promote valued teaching and student outcomes



Helen Timperley, University of Auckland

How did you identify a problem of practice using data?

Leadership inquiry and knowledge-building cycle to promote valued teaching and student



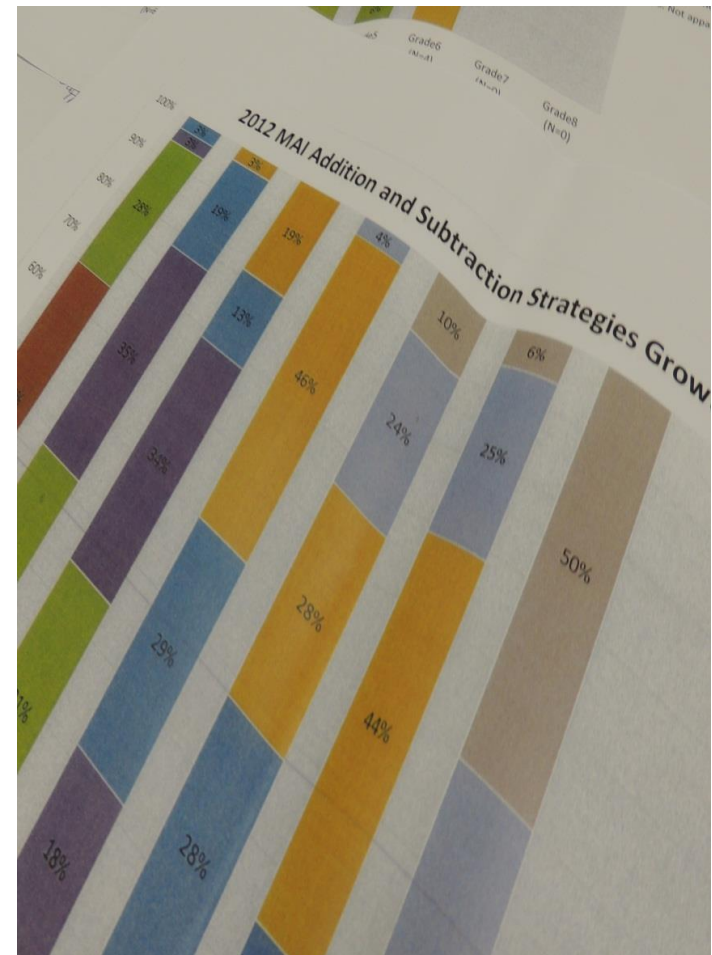
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Mathematical Assessment Interview (MAI)

The Mathematical Assessment Interview is one part of the whole school approach.

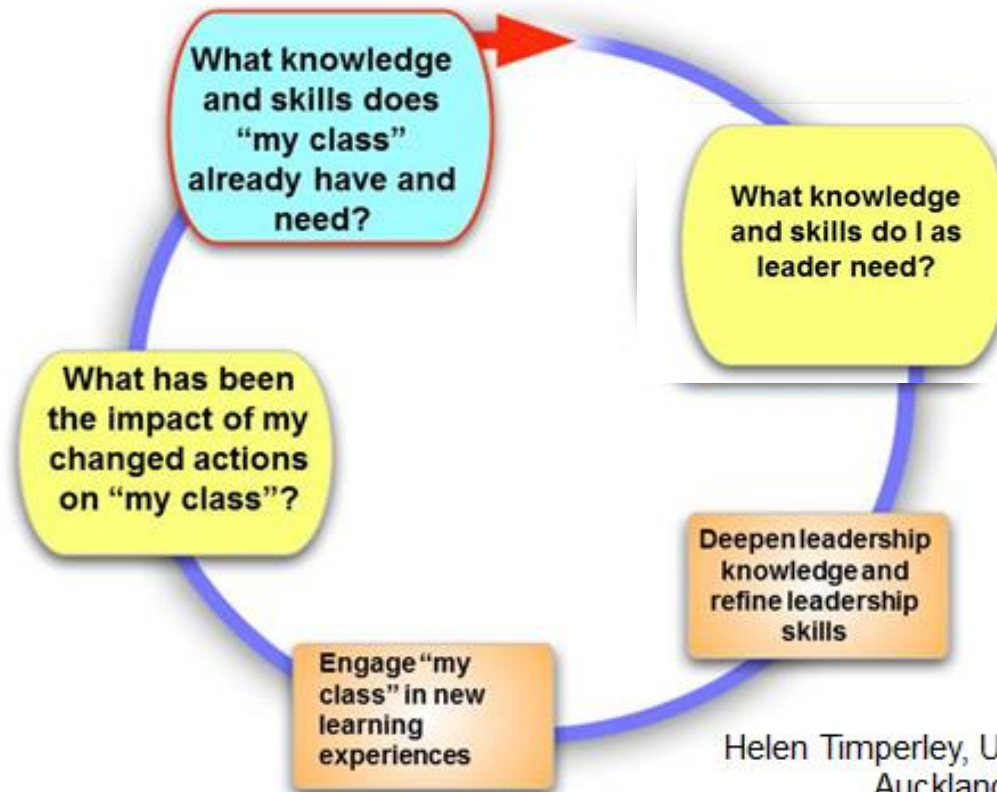
Why use the MAI?

- Diagnostic interview
- Whole school and system data collected K-6
- Based on research. The initial interview was developed by researchers during the Early Numeracy Research Project (Clarke et al., 2002) and later the MAI was refined by Gervasoni et al., 2011.
- Aligned to a learning trajectory



What action did your system take to investigate this problem?

Leadership inquiry and knowledge-building cycle to promote valued teaching and student outcomes



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What action did your system take to investigate this problem?

Deepen leadership knowledge and refine leadership skills

- Analysed system data
- Partnered with the Australian Catholic University and Dr. Ann Gervasoni
- Over four years (2012-2015), Gervasoni led 6 days of professional learning for all principals and nominated Mathematics leaders
- Trained Education Officers as professional learning leaders to facilitate the EMU specialist course

What action did your system take to investigate this problem?

- Over four years trained 108 specialist teachers
Engage “my class” in new learning experiences
- Every primary school has a least one specialist teacher who facilitates an intervention group in either Year 1 or 2
- These three students receive intervention daily for 30 minutes, five days a week, for 20 weeks

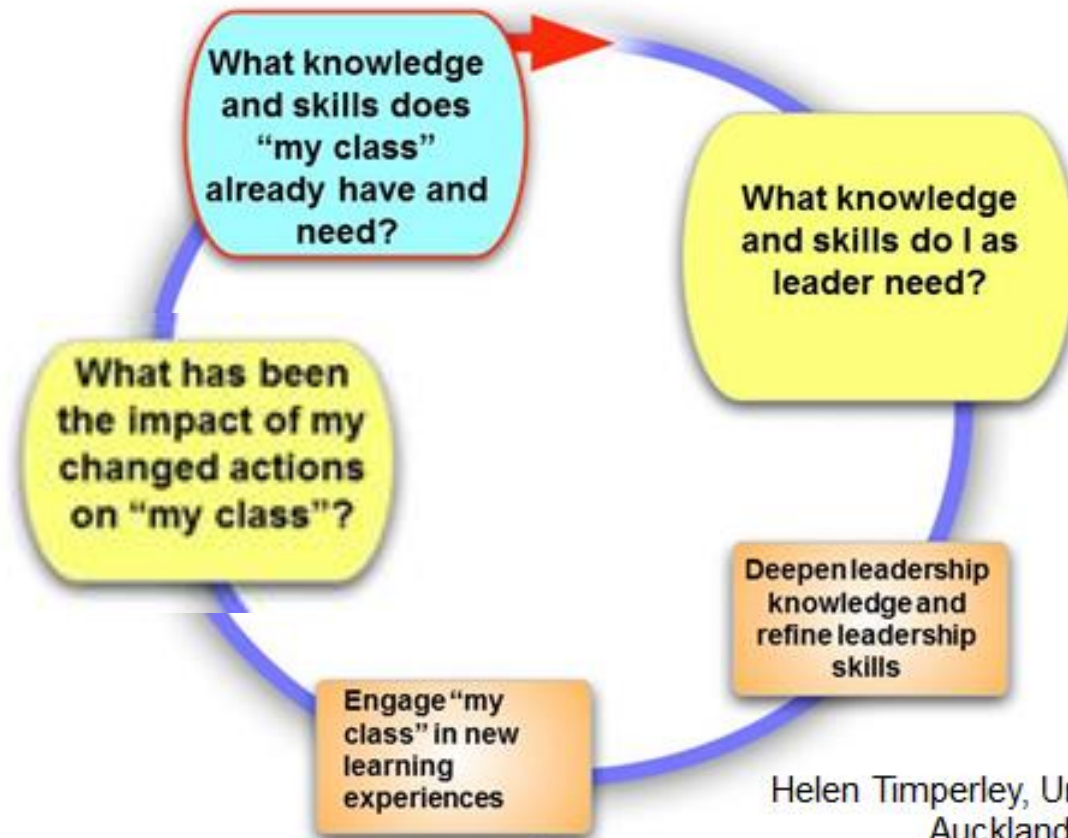
What action did your system take to investigate this problem?

Three waves of intervention

- **First wave:** within the classroom, learning through classroom teaching
- **Second wave:** targeted intervention for identified students requiring additional support. Led by EMU specialist teacher (EMU group)
- **Third wave:** more intensive intervention for those students not responding to the second wave and ongoing support through the IPs.

Part 3: What data do you have to show how the changes are making a difference?

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Part 3: What data do you have to show how the changes are making a difference?

- Pre- and post- student assessment data illustrates the impact of the second wave intervention
- Trained specialist teachers are impacting positively on classroom practice (first wave intervention). This effect is evident from the whole school data collected in February and tracked longitudinally.

Part 3: What data do you have to show how the changes are making a difference?

- Decrease in the vulnerability of students exiting kindergarten e.g. some schools do not need to have an early intervention group because of effective first wave

Case Study School: The Kindergarten teacher was trained as an EMU Specialist in 2012. The 2013 MAI data showed that 16 Year 1 students (55%) were vulnerable in one or more domains. In 2014, the number of vulnerable Year 1 students had reduced to four (17%). This trend continued in 2015 when only two students (10%) were identified as vulnerable.

Part 3: What data do you have to show how the changes are making a difference?

- Pre and post testing highlights the effect of the intervention

Date	4 Domains		3 Domains		2 Domains		1 Domains		0 Domains	
February 2014 n148	19	12.8%	33	22.3%	42	28.3%	49	33.1%	5	3.4%
November 2014 n148	10	6.8%	10	6.8%	33	22.3%	34	22.9%	61	41.2%
	-9	-6%	-23	-15.5%	-9	-6%	-15	-10.2%	+56	+37.8%
* 19 Validated students										

Part 3: What data do you have to show how the changes are making a difference?



Leadership Course Evaluations

“Having time to partake in a professional learning experience that is linked to school improvement plans”.

“Time to reflect on practice and leadership structures”.

“The opportunity to develop individual pedagogical practices and procedures”.

“The most valuable aspect of the course was the whole school approach that we used as a result of the course”.

Part 4: Reflect on what you have learnt, and implications for others

- System and whole school approach
- Building capacity in leaders in all schools to deliver effective professional learning, relevant to the local context, for all staff
- Using research proven High Yield Strategies for professional learning e.g. Co-teaching
- Engaging with academics to ensure current research is evident in our schools

Part 4: Reflect on what you have learnt, and implications for others

- Developing all teachers' mathematical content knowledge (MCK) and pedagogical content knowledge (PCK) is an ongoing priority
- Triangulating data and using this data to know our students better
- Engaging parents and caregivers within the whole school approach