

Action learning cycles

Leader Story

Chris Clurey
 Assistant Principal
 St Brigid's Primary School
 Nerang Cluster

At St Brigid's School we wanted to develop our mathematical pedagogy and this was facilitated by the curriculum leaders through an Action Learning Cycles (ALC) approach. Lingard, et al. (2003) commented:

... productive leadership encourages intellectual debates and discussions about the purposes, nature and content of a quality education; promotes critical reflection on practices; sponsors action research within the school; and seeks to ensure that this intellectual work connects with the concerns of teachers, students, parents and the broader educational community. Such leadership also ensures that teachers, and others working within schools, are provided with the support structures necessary to engage in intellectual discussions about their work, to reflect on the reform processes within their schools, as well as their pedagogical and assessment practices. (pg. 20)

The ALC approach allowed teachers at St Brigid's School to develop their mathematical pedagogy in response to the particular needs and demands of the site. It also provided a structure for ongoing professional learning and development that evolved in response to the issues and ideas that were brought to light in each cycle.

The approach was a collaborative one and the teachers involved worked together and were supported by the curriculum leaders as they sought to develop their mathematical pedagogy. The teachers who participated came from a variety of levels across the school and their participation was voluntary. In the table below the first two cycles are summarised.

Cycle	Activity
1	<p>Focus: Mathematical problem solving.</p> <p>Act: The teachers met and did a mathematical problem-solving task.</p> <p>Data: They shared their solutions and their solution pathways.</p> <p>Reflect: Teachers discussed their various approaches to the problem. This clearly highlighted the multiple approaches people (including students) can take to solving problems and the need for pedagogy to cater for multiple pathways.</p>
2	<p>Focus: Questioning in mathematical problem-solving lessons.</p> <p>Data: Teachers prepared and taught a problem-solving lesson.</p> <p>Observe: The lesson was observed by a colleague who collected data re the questions asked.</p> <p>Reflect: The teachers met with the project critical friend, the school middle leaders, and their teaching partner and discussed their observation data. It was clear that there was an uneven distribution of questions in terms of their quality (i.e., mostly low order questions) and the respondents (e.g., most questions directed to a few students). Teachers then looked at strategies to improve their questioning.</p>

Cycle 1: Shared mathematical activity

At the first meeting the teachers did a shared mathematical problem-solving activity. The activity was one that the teachers were considering using with their Year 7 students. However, in this meeting they did not particularly review the task for its pedagogical features, but rather engaged with the activity and found their own solutions. After they had completed the activity, they then shared their solutions and their solution pathways. Through this activity and reflective professional discussion the teachers were able to:

- appreciate the everyday experiences of their students in their mathematics classes
- see that there were a number of ways to approach and solve the problem, and so they also needed to allow for this diversity in their classrooms
- experience the joy (and frustrations) of mathematical practice.

“...this experience provided the spark for the teachers to look at how we can improve our pedagogy”.

While this first activity did not explicitly focus on classroom practice, it was instrumental in establishing the ALC and a shared inquiry approach. According to Chris (Curriculum Leader), “this experience provided the spark for the teachers to look at how we can improve our pedagogy”. Also, it helped develop an atmosphere of trust where teachers were able to engage collegially in a relatively non-threatening activity, and therefore be more open to working collaboratively in their classrooms. Through the discussion that followed the shared task, the participating teachers decided to look at aspects of their questioning in the second ALC.

Cycle 2: Questioning

The second cycle involved the teachers working in pairs to focus on their questioning during mathematical problem-solving lessons. Together, each pair of teachers decided on what aspects of their questioning that they wanted to focus on (e.g., spread of questions, type of questions), and what data they were going to collect during their classroom visits. (For more details of this cycle see the ‘Significant Episodes’ where some of the participating teachers outline their own perspectives of this cycle.)

After the data was collected during the classroom observation, it was returned to the teacher concerned who could then reflect upon it. The teachers then met with a critical friend (an external consultant from the university) to discuss what the data revealed and pedagogical ideas in response to their findings. The teachers then engaged in a professional reflective discussion about questioning, drawing on their data, to develop some shared understandings about pedagogy in mathematics. One outcome was the purchase of class sets of mini-white boards, so all students could be engaged in thinking and responding to questions by moving away from the ‘hands-up’ approach. Chris noted:

The white boards raised the expectation that all students would respond to questions through writing on their white boards thus increasing the involvement of all students within a maths lesson.

Also, apart from the shared experiences around questioning and the pedagogical developments, there was also an increased sense of collegiality and trust that developed through the classroom visits and professional discussions.

Broader Outcomes

The ALC approach to staff development has had a number of benefits for the school beyond the aspects outlined above. Of note, these included:

- developing a culture of ongoing professional learning and discussion around effective maths pedagogy
- promoting improved collegiality and trust through teachers working together and collecting data during each other’s lessons
- promoting a passion in teaching staff to reflect upon and improve their mathematical pedagogy in their own classrooms and across the school

- improving teaching and learning strategies utilised in mathematics lessons as a result of data gathered during action research
- improving student participation and engagement in mathematics lessons for Indigenous and non-Indigenous learners
- providing the time for teachers to meet as a group and explore aspects of mathematics pedagogy at deeper level as teachers are rarely given this opportunity
- a very effective model to promote peer coaching and in-school professional development.

It should also be noted that the process also focused throughout on the particular mathematical learning needs of our Aboriginal students. Although there were only a few Aboriginal students at this time, we were also conscious of developing our understanding of their learning needs, particularly so we could develop our mathematical pedagogy for all the Indigenous students we may have now and in the future.



Finding 6.1: Approach

Have a focused, structured approach to what you want to achieve as a team and establish common core values and attitudes.



Finding 6.4: Action learning

Participate in action learning or research where you design, act, observe and reflect. This involves examining data to determine current progress and future planning.



Finding 6.7: Collaborate

Focus on a specific area of professional learning and collaborate through professional relationships on a common goal.