The Importance of Language

One Arm Point Remote Community School

Ardiyooloon, also known as One Arm Point, is a small coastal community at the end of the Dampier Peninsula. It is home to around 500 Bardi Jawi people. The nearest regional centre is Broome, 220km south of the community. The community is surrounded by pristine waters with massive tidal flows – on average 11m, making for spectacular changes in the landscapes and seascapes. The area is well-known for its high-quality pearl industry based at Cygnet Bay. One Arm Point has a fish hatchery that is open to tourists.

One Arm Point Remote Community School was established with the desettlement of the mission on nearby Sunday Island in 1960. Many of the Bardi Jawi people moved between Sunday Island and the mainland. After the mission closed many families had to live between Derby and Lombadina. By the late 1960s people began to move back to One Arm Point, and by the early 1970s a small school was set up on Middle Beach under a baali (wooden hut-like shelter). In later years, the school was relocated away from the beach and into the heart of the community, and the infrastructure grew.

One Arm Point Remote Community School offers education for students from years K to 12, with an enrolment of approximately 100 students. The school has an on-site pre-primary centre, three primary classrooms, a secondary classroom, a home economics and manual arts centre, a culture room, and an undercover basketball court. Through its educational programs, the school recognises the cultural and language background of its students. At the same time, the school strives to achieve student performance comparable to that in mainstream schools. There is a strong emphasis on language. The students are good at code switching between their home language (Bardi), Aboriginal English, and Standard Australian English (SAE). A specialist class in the local Bardi language runs weekly for students in Year 3 onwards. Attendance is generally very good, and the local store displays the daily attendance.
figures of the school. Each class has an Aboriginal/Islander Education Officer (AIEO), all of whom are striving towards receiving a tertiary qualification. These qualifications range from Certificate III to teacher education qualifications at university level. One of the local women completed her teacher education program in Perth and works in the school as a teacher; another is in her final year, and another has just commenced. There is a very strong partnership arrangement between the teachers and AIEOs. The principal has developed a strong culture at the school that AIEOs are not disciplinarians and that discipline is predominantly the responsibility of the supervising teacher. A key focus of the school is building relationships, and this is reflected in the school values of respect, confidence, personal best, and safety.

The current principal had the school undertake training through the Stronger Smarter Institute to build a culture of respect and inclusivity. The principal is very careful in the selection of staff and seeks to employ those people who are willing to embrace the culture of the Bardi people. Being part of the Stronger Smarter program means that building relationships is an important value and strategy of the school.

Defining Success

One Arm Point has performed better than like schools in NAPLAN numeracy over several years. This success has occurred in Grades 3, 5, and 7. Teachers have other measures that indicate the numeracy success of their students. The “Numeracy Profile,” a whole-school numeracy assessment tool based on First Steps Mathematics and designed specifically for One Arm Point, shows that students are exceeding expectations in understanding number. The tool uses First Steps diagnostic tasks and teacher-designed assessment tools to monitor, assess, and track student progress in Number. The school has found the students thrive in Number and are focussing on mental computation strategies and vocabulary building based on the four operations.
Engaging Learners

Engaging students in learning is a priority at One Arm Point. However, prior to building activities that will engage learners, teachers need to build strategies regarding behaviour and expectations. One teacher described spending her first term establishing protocols and expectations of behaviour so that she would then be able use innovative teaching methods.

Teachers across the school have developed a range of strategies to ensure that students are engaged in mathematics learning. These strategies include the use of games and movement, pacing, culturally relevant learning activities (including activities that incorporate fishing, tides, and bush resources), and technology. All the activities have a mathematical focus to them. In order to engage learners in these activities, it is necessary to build language competency; consequently, learning activities require students to access mathematical language and communicate mathematically.

Games and Movement

Students in one class were working on directed number line. Two games were used to increase students' engagement in the learning. One game involved the teacher writing an equation on the board. Students were required to stand, and then to sit when they had determined the answer, using their number line, to the equation. For example, the teacher wrote on the board “-7 + 3”, and students looked at their number lines in order to determine the answer. When all students had determined the answer, they stood again, and the teacher wrote a new equation on the board. This was a fast-paced activity, and many students appeared very keen to be the first student to determine the answer.

Another game involved basketball, which is one of the passions of the students. The class moved outside to the basketball court, where a number line had been drawn with chalk. Students formed pairs, and the teacher called out equations, such as “negative three plus four.” The student who reached the correct number first could then shoot the basketball. A tally of successful throws for each team was kept. Like the previous game, this game was very fast paced. Students were very engaged and were keen to win the game.

The teacher of a younger class involved movement in her teaching of shapes. Students had learned about shapes through a book about spider webs. The teacher had strengthened this learning by walking the students around the school and asking them to find shapes in the school’s buildings.

Pacing

Teachers indicated that a fast-paced lesson was necessary to keep children attentive and interested in the learning. Several teachers made use of questioning to set a fast pace. In one class, students were required to describe a number line, and, in response to the students’ descriptions, the teacher intentionally drew the number line incorrectly on the board. She then used a fast series of questions, such as “Which way?” (referring to the orientation of the line) and “Where?” (referring to position of the zero on the line). Students were very engaged in this section of the lesson, calling out when the teacher made a mistake, and yelling instructions. Questioning was also used to maintain the pace of the teaching in a younger class. The teacher read the students a book about spiders, and asked students questions about the number of sides and corners in the spider webs illustrated in the book, and asked the students to name the shape of the spider web.

As described previously, the number line games used in one of the lessons were very fast paced. Other lessons also made use of fast-paced activities. One teacher used several games, including number bingo, and moved very quickly from one game to another in an effort to keep the students engaged. The Aboriginal/Islander Education Officer (AIEO) in this classroom also used a fast-paced subitising game, which required students to call out the number of items represented on a series of cards, while the teacher attended to an individual student.

Culturally Relevant Learning
Activities

One Arm Point Remote Community School makes use of culturally-relevant learning activities to increase students’ engagement in learning. One class was learning about measurement and place value and proportion. Two activities were described to children in the context of the nearby pearl farm. Children were told that 1 in 10 tourists at the pearl farm would want to buy a bag of soapy leaf. Soapy leaf is a local plant that the locals use as a form of soap. It can also be used in a hot bath as a form of relaxant. One group of children were required to use MABs to determine how many bags of soapy leaf should be prepared if the pearl farm had 1,000 visitors during the dry season.

Another group of students were required to package the soapy leaf. The organza bags in which the soapy leaf was to be packaged had not yet arrived at the school, so the leaf was packaged into plastic bags, which differed in size from the organza bags. Consequently, the students were required to measure the plastic bags and fold them so that they were the same size as the organza bags. In addition, children were required to weigh bags of soapy leaf using various scales.

Technology

Technology is used to increase student engagement at One Arm Point Remote Community School. Computers are used for warm-up activities. In addition, students enjoy using Mathletics and, in one class, Mathletics is used as a reward. Many lessons also make use of iPads, on which the children play maths games.

One teacher explained that the upper-primary students are very interested in YouTube videos, so these are used to increase student engagement. This teacher began her class with a YouTube video that presented a segment of a popular televised singing contest. Later in the lesson, a humorous YouTube video was used as a teaching tool. The video showed a group of students and teachers doing the “Number Line Rap,” which addressed addition and subtraction on the directed number line.
The school is in a very privileged position to have a highly qualified force of AIEOs. Each teacher has an AIEO in the classroom. The AIEOs are all working towards some tertiary qualification – one AIEO is in her final year of a teaching degree, and one has just commenced her teaching degree, and the others have a range of qualifications. Having such a highly qualified support team means that the classrooms are equipped with essentially two teachers. The teachers were confident that the AIEOs would always be more literate and numerate than the students (which is not always the case in some remote settings).

The leadership team at the school had given firm direction that the AIEOs were part of the teaching situation. Consequently, the AIEO role is far more involved than being responsible for language and translation, discipline, or the construction of resources. The school actively employs the skills of the AIEOs so, in all classrooms that were part of this study, the AIEO was a partner in the teaching team and took an active role in the teaching situations. For example, in some classes, a teacher began giving instructions, and the AIEO completed them. When the teacher was required to leave the room, the AIEO seamlessly took over the lesson. In other teaching situations, the AIEO led one of the small-group activities. The AIEOs also provide contextual information that helps teachers and administrators manage behaviours and understand community/cultural issues that may be affecting learning.
Language is a significant part of the curriculum at One Arm Point. The curriculum involves instruction in home language (Bardi), the development of strong SAE, and code switching. The school emphasises the need for students to see, hear, and speak in appropriate SAE, and communicating in appropriate mathematical language is a key element of mathematics teaching. Classrooms have many displays to act as stimuli and reminders of mathematical terms/concepts. Teachers model key terms, offering definitions as part of general discussion, and there is considerable scaffolding of mathematical language. For example, in the pre-prep class, students were immersed in activities that bring out the language of mathematics, and students were expected to speak in appropriate forms of SAE when communicating mathematically. AIEOs help with code switching if students do not appear to grasp concepts, and many of the teachers incorporate Bardi words into their classroom interactions to acknowledge their value.

In one classroom, the teacher had organised a number game in which the students had three cards. Each card had prompts for the student to use full sentences to ask “Who has <number>?” and to reply “I have <number>.” The prompts were provided so that SAE was being modelled and the students were expected to use full sentences rather than single-word responses.
Modelling Appropriate Mathematical Language

The following extract is taken from a lesson in which the teacher was revising directed numbers. The teacher asked students to describe a number line, and she used students’ language to (mis)represent their responses as she attempted to draw a number line on the whiteboard. In this process, her intent was to draw attention to the meaning of terms and the precision that is needed to communicate effectively in mathematics. The banter was very friendly, and very fast paced. The students were enthusiastic as the teacher made incorrect interpretations of their words. The interaction was like a game in which the students had to try to get the teacher to get the number line correct.

(T = teacher, S = student)

T: Last term we did work on number lines, on negative and positive. What do you remember?
S: Draw a line.
T: (Draws vertical line.) Like that?
S: No! The other way!
T: Which way?

S: Across! (Gestures to show “across”.)
T: Oh, like this? (Draws horizontal line.)
S: And you put a zero.
T: (Draws a zero on the board, not on the line.)
S: No!
T: Oh, so not there. Where?
S: On the line.
T: Like here? (Indicates a point near the end of the line.)
S: No! Over there! (Pointing.)
T: Where?
S: In the middle!
T: How do I know where the middle is? Do I just look and guess?
S: Yeah.

T: (Draws a zero in the middle of the line.)
T: Ok, where do the negative numbers go?
S: On the left.

T: What do I write?
S: Put a 1.
T: And what else?
S: A line.
T: Like this? (Draws vertical line.)
S: No, like this. (Gestures across.)
S: Like an equal.
T: (Draws an equal sign.)
S: No, only one line.
T: (Draws very small horizontal line.)
S: No! Bigger!
T: Like this? (Draws appropriately sized horizontal line.)
S: Yes.
T: And where do the positive numbers go?
S: On the right.

T: We’re going to do our own number lines so we can play a game in class. If I’m just telling you to do a number line, how do you know what number you’re going to be doing it to? I want you to do it from negative 20, all the way to 20. So, it’s going to be a big number line. And what goes in the very, very middle of your number line?
S: 0
T: Fantastic.

Language-rich Environments

Teachers have created rich learning environments with many stimuli for language learning. These text-rich areas of the classroom not only create visually engaging learning environments but also act as cues and support for learners. Many of the classrooms use resources that the students and/or teacher created.
Advice to Teachers

Building a Classroom Culture that Enhances Learning Takes Time and Perseverance

Establishing a learning culture requires a classroom culture that is respectful of others. Establishing norms about behaviour and expectations may take considerable time, particularly if there has been some instability in the classroom. One teacher described needing a full term to build a culture that enabled learning. Although there were days when she felt she could not continue, she persevered and now has a classroom where students respect others, and learning can occur. Initially she had a very structured, formal classroom – quite “old fashioned,” in her terms – where students sat at individual desks. When they engaged with the expectations in the classroom, the teacher was able to move to more interactive approaches in her teaching.

Engaging Learners is Critical for Learning

Learning environments and teaching episodes need to engage learners in the learning process. Many strategies can be employed to achieve this. Using fast-paced activities helps students enjoy the learning.

Language is Critical for Learning Mathematics

Much of contemporary mathematics is embedded in language, so proficiency in SAE is essential for success. Teachers need to model SAE in mathematics classrooms and create opportunities for students to develop competency in SAE, so that students can access, decode, and interpret the demands of tasks.

AIEOs Provide Strong Role Models for Students

The AIEOs should be employed to work as co-teachers in mathematics. They are able to provide scaffolding around issues of language and also act as role models to exemplify the effective use of SAE in communicating mathematically. In this way, AIEOs act as a critical conduit through which students see various ways of communicating mathematics.

Take Cues from the Students

Engagement is a critical element of teaching, but life in communities can impact on student behaviour. Being responsive to the students on a day-to-day basis is important in maintaining order in a classroom, as this helps to build the momentum in a classroom. As described previously, one class culminated with a maths activity incorporating basketball. The teacher called out an operation such as “negative three plus four.” Students were in pairs, and the first of the pair to run to the correct number on the number line could shoot a hoop. This activity drew on the students’ love of basketball and incorporated mathematics. The teacher let the activity go for longer than she had originally intended, as the students had remained engaged and on task for more than 20 minutes. The teacher felt that the activity was incorporating the directed number work in ways that engaged the learners better than the activity that had been planned to follow this activity.
Providing high-quality learning environments helps to build engagement for learning mathematics. Many strategies can be used to help engage learners. These include the use of games, fast-paced activities, culturally relevant learning activities, and technology.

Building strength and competency in SAE is foundational to success in mathematics. Modelling appropriate SAE and providing opportunities for students to use SAE in mathematics is an important component of mathematics lessons.

Building capacity among local adults to be a part of the teaching environments is an important strategy for building community capacity. Local people employed in valued positions within the school are solid role models for the students. AIEOs use SAE in the classroom and thus provide examples of appropriate use of SAE in mathematics.

Key Messages – Summary
Model for Quality Learning

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<tr>
<th>Key Idea</th>
<th>Principle</th>
<th>Mathematics</th>
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<tr>
<td>Language – Bardi and SAE</td>
<td>Model appropriate use of SAE.</td>
<td>Consistently model mathematical terms in the classroom so that students can hear and learn appropriate mathematical discourse. Encourage students to use full sentences to pose and respond to questions when communicating mathematically.</td>
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<td>Create language-rich learning environments.</td>
<td></td>
<td>Display many mathematical resources for students to access. The resources are a blend of commercial, teacher-made, and student-made resources. Bardi language is displayed in the classrooms.</td>
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<td>Engaging learners and learning</td>
<td>Create lessons and learning activities that will engage students in learning mathematics.</td>
<td>Use a range of strategies to ensure that mathematics lessons engage learners - pacing, use of games and rotations, use of technology, draw on cultural and community events, etc.</td>
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<td>AIEOs are a valued component of the teaching team</td>
<td>Employ an AIEO in every classroom.</td>
<td>Employ the AIEO as a teaching partner who assumes responsibility for teaching mathematics.</td>
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<td>AIEOs should be an integral part of the school community and wider community. They should have tertiary qualifications, and should be local people with a commitment to the school and mathematics education.</td>
<td>Employ AIEOs who have tertiary qualifications in the area of mathematics education, or support them to obtain these qualifications.</td>
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<td>Actively involve AIEOs in the teaching of mathematics. Their role should extend beyond discipline and resource creation to being part of the mathematics teaching and learning environment.</td>
<td>Ask AIEOs to take small groups and the whole class, and to teach aspects of mathematics. Ask AIEOs to model appropriate use of SAE and help children to code switch between their languages and mathematical discourse.</td>
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School Demographics

| Year range | K-12 | FTE teaching staff | 8 |
| Total enrolments | 92 | Non-teaching staff | 13 |
| Location | Very Remote | FTE non-teaching staff | 7.4 |
| ICSEA (school) | 0 | Indigenous students % | 98% |
| ICSEA (distribution of students) | 89% | Enrolments: Girls/Boys | 45/47 |
| (bottom quarter to top quarter) | 8% | Language background other than English | 54% |
| Teaching staff | 8 | Student attendance rate % | 73% |

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