

Carrying the conversation in my head: classroom dialogue in a remote Aboriginal setting

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In this chapter we explore what it means to create classroom dialogue in a context where the teacher and students begin with very little shared understanding of either the topic or the academic purposes implicit in the curriculum goals. The material for our enquiry is drawn from a series of four mathematics lessons about 'telling the time' that took place in a remote Aboriginal school. Author two in this paper, Matt Lotherington, is a teacher and curriculum coordinator in the school, while authors one and three, Helen Harper and Bronwyn Parkin, are researchers.

We were interested in studying teacher-led classroom talk, and how this talk could be used to support students to appropriate new language and concepts. The interactions described in this chapter support learning in the Literacy strand of the Australian English Curriculum, specifically the 'Interacting with others' sub-strand. In these lessons, students were learning to listen to and contribute to conversations (ACELY1676 and 1709); clarify understanding of content and connecting ideas to experience (ACELY1699); and develop and support arguments and share information (ACELY1709).

We understood 'dialogic teaching' to be an intentional, goal-oriented process, and, following Alexander (2005; 2006), having the following principles:

1. Dialogic teaching should establish the climate of classroom talk by setting out rules for speaking and listening; that is, it should be collective, reciprocal and supportive;
2. It should simultaneously build content; that is, it should be cumulative and purposeful.

However, in remote Aboriginal settings it is often not easy for a teacher to find the right starting point for dialogue with students about curriculum content. The teacher has considerable work to do in establishing common ground and meaning, sharing purposes for learning, and scaffolding the talk sufficiently for the students to be able to join in confidently and without fear of failure or ridicule. We wanted to identify pedagogic strategies that helped establish a climate where students felt part of the collective group, and at the same time supported them to take control of language they needed for learning. In this chapter we present extracts from Matt's lessons to show the strategies Matt used to cultivate purposeful dialogue, even though only a kernel of shared language and alignment about the topic existed when he began. We use this discussion to reflect on our emerging understandings of what 'dialogue' is, from the perspectives of the teacher and researchers, and on the implications for other teachers learning to teach dialogically.

The context

The context for our study was a school in the remote Aboriginal town of Maningrida in the Northern Territory. At least 11 Aboriginal languages are spoken in this town. Maningrida College has an enrolment of about 700 students (P-12), of whom about 95% are Aboriginal. School attendance fluctuates greatly, averaging around 50%, particularly during the dry season, when many people move back to traditional country. The official language of instruction is English, although many children have minimal English knowledge when they first come to school.

Literacy and numeracy levels as measured by the National Assessment Program Literacy and Numeracy (NAPLAN) are low, and more than 80% of students score in the lowest Band 4 for reading, compared with just 3% nationally (ACARA, 2015). For the past five years, the school has implemented a scaffolded approach to English instruction, through the Accelerated Literacy program (Cowey, 2007; Gray, 2007). The approach is a source of Matt's experience in scaffolding pedagogy.

Matt's class at the time of our study comprised 12 students in Years 5 and 6. All were Aboriginal, and all spoke English as an additional language or dialect. A high-attending class, they averaged 91% attendance. However, their generally low levels of literacy and mathematics created some challenges for building age-appropriate content.

Two challenges

Matt faced two major challenges in teaching 'telling the time'. First, the students demonstrated little understanding about the social purposes for using clocks, something which would be assumed knowledge in many other educational contexts. At the start of our project Matt reflected that people in Maningrida were highly skilled in using natural markers of time, such as movements of the sun, or seasonal changes, but they did not engage consistently with measures such as hours and minutes. Matt also talked about the frustrations of previous teaching, when he had taught 'am' and 'pm', but the students showed no evidence of having appropriated the concepts:

[It] seems straightforward; I'd teach it one day and come back the next, but it always baffled me why that handover just wasn't there. One of the 'aha' moments was when one of the kids asked, 'Why do we need this? Like I can look up at the sky and it's night time and I can look up and it's daytime.' That got me thinking about the way we use time, and the way our students' families use time. ... We're telling them that time is a big thing, yet I don't think that has much carry-over once they leave the school gate. It's something relatively simple like am and pm, but they don't attach it to anything.

In light of this reflection we considered why we use clocks, and how Matt could explain this so it made sense to his students. First we established the difference between natural and 'human-constructed' ways of measuring time and explained the distinction reasonably swiftly as an orientation to the mathematics topic. We recognised that natural time is measured in units such as 'morning', 'days', or seasons, and these are often loosely defined in everyday use. The human-made clock, on the other hand, allows us to measure the day in evenly-spaced, smaller units, depending on our social needs. We considered practical reasons for measuring time in hours, such as knowing when the shop opens, or for catching a plane. Perhaps most significantly, keeping time and arriving on time is important for many people because it shows respect for others.

The second challenge for Matt was that the students were unfamiliar with both the conceptual basis and the process for 'decoding' a clock face, and they lacked the language to discuss it. This meant that at the start of the teaching sequence, Matt would carry much of the responsibility for producing the language and mathematics knowledge that the students needed. To help Matt do this, we prepared a 'focus text': a series of statements to help Matt become conscious of and foreground the target language, so that students had many opportunities to engage with it.

In the following sections we present two sets of extracts from Matt's teaching: a sequence

addressing the first challenge, where the class developed a shared understanding of the social purposes for measuring time; and a sequence addressing the second challenge, where they focused on the language and process of telling the time.

Social purposes for telling the time

The following three extracts are from Lessons 1 and 2. Matt did not aim to explore the social aspects of time extensively, but rather to dedicate a small amount of whole-class teaching time as an orientation to why people use clocks, preparing the students to use conventional units of time measurement.

In Extract 1 Matt introduced the purpose of telling the time. Having briefly discussed 'natural' time, he shifted the topic to more mathematical ways of talking about time. Working with an image of a clock, he introduced the words 'measure' and accurate'.

Extract 1 *People came up with a way of measuring time* (Lesson 1)

T: So we know that at the moment, it's wet season. All right? We know that then, it's gonna be dry season. We know it's daytime, okay? But, people sometimes need to measure time a bit more accurately, don't they? You can't just say, 'Oh, I'll meet you in the daytime.' If I told Michael I'll meet him over at the shops in the daytime, are we gonna get there at exactly the same time?

S: No.

T: We might. But then again, we probably won't. Cause daytime is a lot of daytime, isn't there? Just cause the sun's up, that's daytime. So people came up with a way of measuring time. [Indicates images of clocks on the board.] So we invented some of these things to measure time. So we all know what that is, don't we? [Points.] What's that a picture of, Tom?

S: Clock, clock.

T: Clock. We've all seen a clock before, haven't we? So mankind invented a clock to measure the time. So yes, it's daytime, but now we can actually **measure** daytime. So instead of saying to Michael, I'll meet him at the shop daytime, I could say I'll meet him at the shop at--

S: 9 o'clock.

T: 9 o'clock

S: 9 o'clock.

T: in the morning. Okay? Just - it's just the way that mankind has tried to make it more accurate. When I say accurate, what's another word for accurate? We've all heard that word. Some of my kids from last year, what's another way of saying accurate? What does that mean, accurate? Mean it's right or wrong? If it's accurate, then it's--

S: Ri-right.

T: Right. And it's more than just right, isn't it? It means that it's really precisely right. It's actually on-the-dot accurate [Taps fingers of right hand on left hand palm repeatedly].

Later in the lesson, Matt revisited his discussion of 'why we measure time', but now he was looking

for more extended contributions from the students.

Extract 2 ***Can anyone think?*** (Lesson 1)

T: So we spoke about why we measure things. Can anyone think about why we might measure things? Why is it better to say, "I'll meet you at 1 o'clock," than to say, "I'll meet you at the daytime"? Lee? It's a tricky question, okay. ... This isn't easy thinking. It's not straightaway, "Oh, I know the answer." It takes some real thinking. Why would it be important for people to measure time? Remember when we said more accurately, so that it's more accurate, rather than to say, "I'll meet you at lunchtime," or, "I'll meet you in the daytime," or, "Let's do that at night time." Lee?

Lee: because if someone just said, "Meet me in the daytime," they wouldn't know what time.

T: That's exactly right. Lee might be thinking, "Oh, yeah. 3 o'clock, that's daytime." I might be thinking, "Lunch, uh, midday, that's daytime." Are we gonna make it the same time then?

S: No.

T: No.

S: Yes, but you might.

T: No but we might. There's a chance we might, but we want to make sure. And that's why we measure things, is because we wanna make sure.

The following day Matt again returned to the question of why we measure time, building on accumulated knowledge from the previous day.

Extract 3 ***Why do we need a measured time?*** (from Lesson 2)

T: So even if we didn't have a calendar ... we'd still get the seasons. So that's what we're going to call natural time. But man-made time, look at these numbers here [points to numbers on the clock]. What do we say ... It's like when we're doing length. What do we use the numbers to do? You said it yesterday. It's m- remember? [gestures hands apart ruler length] Sometimes you do it with a ruler to see how long your -

S: Measure.

T: book is, yes. Good boy. Well done. So all these numbers here is just to help us measure time. And we spoke about why it's really important to measure time and to be on time, okay? And to have a measured time. Who can remember what we spoke about? Remember we sort of thought about meeting Lee at the shop. What did I say? Why, why do we need a measured time? Tom?

Tom: Like, if, if we tell them what time it is, he can't know about your-- if you can't tell what's the time when he don't know what the time-- what's the time to come.

T: Yeah, you're definitely on the right track. Absolutely. If, if we didn't have time, you couldn't tell the time so you wouldn't know when to meet. You want to say anything, Lee?

Lee: Um, because if you say meet me in the day, he wouldn't know when in the day.

T: Yeah, that's right. Meet in the day? Well, day is, like, a very long time, isn't it? So if I said to meet Lee at the shop in the day, there's a chance we could meet each other; there's a good chance we'd miss each other.

In these three extracts Matt did most of the talking, with notable extended contributions from Lee and Tom in Extracts 2 and 3. However, we found that Matt used many strategies to support all of the students to follow his thread, even if they were not saying much. First, he worked hard to establish a collegial, 'collective' climate. He consistently used 'we' to construct the students as aligned with his thinking. He used question tags (*doesn't it?*; *isn't there?*; *Haven't we?*) to imply reciprocal understanding and the authority of students to evaluate his statement. He checked the students were following (*You are all with me, so you know how we measure things?*). When Matt named students individually, it was not to put them on the spot but rather to personalise (*If I told Michael I'd meet him*) or as a gentle reminder of prior learning (*my kids from last year*).

Matt's strategies were also highly supportive. He cued students in to questions to give them a better chance of answering successfully. For example, he reminded the students that they had already addressed this topic: *So we spoke about why we measure things*. He prefaced questions with *Can anyone think*, appealing to the collective and reducing the risk of failure: if no one answered then it just meant no one 'could remember', and Matt would know he had to do more work building the shared knowledge. In Extract 3, Matt supported the students by bringing their attention to the image of a clock face, and attributing them with existing knowledge about measurement by reminding them that they had *said it yesterday*.

Together, Extracts 1-3 illustrate Matt's purposeful, cumulative conceptual thread about why people measure time. This thread began with everyday measurements of time and moved to the uses of clocks, and the meanings of the words 'accurate' and 'measure'. The thread was also characterised by small steps towards handover of the concepts from the teacher to the students, as Matt shifted his demands on student contributions. While the students offered only one-word answers in Extract 1, by Extract 2 Matt progressed to an open-ended 'why' question, explicitly emphasising the questions' challenge and purpose: that this was a new kind of thinking for the students. In Extract 3 Matt returned to the everyday concepts of seasons and a concrete definition of measuring, before revisiting his challenging 'why' question, reminding the students that this was existing knowledge and drawing on their collective memory (*remember what we spoke about?*). Matt then used both Tom's and Lee's responses to reinforce the thread, reformulating Tom's statement for all to hear, in a way that both acknowledged and helped clarify Tom's meaning. Rather than moving on immediately, he invited Lee to add more and also elaborated Lee's answer for the benefit of the group.

Collectively and cumulatively building the language for mathematics

The second challenge for Matt was to teach the process of telling the time, and the language that could support students to use this process. As noted above we developed a 'focus text' that would become a mnemonic for engaging with the clock. Matt aimed to foreground this language, so that the students could have multiple opportunities to hear, practise and internalise it.

The focus text addressed the movement of the clock's hour hand from one number to the next, and

how to read this movement. Thus an important section of the focus text was:

When the hour hand points to a number, it starts the hour. It stays that hour until it clicks over to the next number.

We have tracked how this focus text appeared in the classroom talk [*in italics*] in the extracts below, across the four lessons.

The first extract in this sequence (Extract 4) is from Lesson 1. Matt had projected an image of a clock with a moveable hour hand. Moving the hour hand between the 2 and the 3 on the clock face, he set up the language that he would build throughout the lesson sequence, demonstrating how to 'read' the hour hand as it moved from one number to the next.

Extract 4 ***This is the most important thing*** (Lesson 1)

- T: So *the hour hand's pointing to the two*, so Wesley, I know it's going to be what o'clock?
- S: Two o'clock.
- T: Good boy. [Moves the hour hand towards the 3.] But it *stays the hour of two until it clicks over to the* -
- SS: Three, three.
- T: The three. Okay? [Moves the hour hand back to 2.] So it's gonna be 2 o'clock .. [Puts the hour hand halfway between 2 and 3.] If it's halfway between the two and the three, if the hour hand's halfway between the two and the three, it's going to be half past--
- SS: Two.
- S: Two.
- T: Two, that's right. It *stays that hour until it clicks over to the next hour*. And what I really want us to take away, okay, is *when the hour hand points to a number that starts that hour*. ... *When the hour hand*—this is the most important thing I need you take away for tomorrow, okay? So if you take away nothing else, you need to take away this. *When the hour hand points to a number, it stays that hour until it reaches the next number*.

In Lesson 2 Matt returned to the focus language, using a clock to demonstrate the movement of the hands.

Extract 5 ***It's still the hour of 2 o'clock*** (Lesson 2)

- T: Now we've found something really interesting about the hour hand and about the way that it measures the hour. And we said - let's have a look. Let me move it to the two, okay. So have a look. Now *when the hour hand's pointing to the two*, which hour is it? It's the -
- S: Two.

- T: It's the two. So two o'clock, isn't it. But if I have a look at this minute hand move around the clock once, which is one hour, what happens to *the hour hand*? Does it stay right on the two?
- S: No.
- T: No. But is *the hour* still two?
- S: Yes.
- T: It's still the, the second hour. It's still *the hour* of 2 o'clock, even though the minute hand's moved off. So it's something past two. Who can tell me when it gets to 3 o'clock? Is it 3 o'clock yet? [Moves the hour hand.]
- S: Nope.
- T: 3 o'clock yet?
- S: No.
- S: Yes.
- T: Pretty close. How can I tell?
- S: It's next to, it's on the dot there next to the three.
- T: That's right. There's two things, good girl. That's right. There's a dot here. So we said, 'Doesn't say 3 o'clock.' It doesn't turn 3 o'clock *until the hour hand clicks over to the next hour. ...*

By Lesson 3, the students could contribute more to the conversation. The class was now working with model clocks made from paper plates.

Extract 6 ***It hasn't clicked to the new number*** (Lesson 3)

- T: But we know something about this hour hand. What do we know about the hour hand?... What do we know about the hour hand and the way that it moves? ... Why do I know that this is still the hour of four? What hasn't it done yet? It hasn't done something yet.
- Brendan: (?)
- T: Shh, listen to Brendan, please, everybody. Go again.
- Brendan: It hasn't *clicked to the new number*.
- T: Did everyone hear what Brendan just said? I wanna give it a clap too. Do you know what he... Do you know what Brendan just said? Brendan really, really accurately said that we know that *this is still the hour of four because it hasn't clicked to the next number*.

A little later in the lesson the class was still practising talking about the hour hand prompted by their paper plate model clocks.

Extract 7 ***Let's try and use Brendan's words*** (Lesson 3)

T: How do I know that this is still in the hour of nine? And let's try and use Brendan's words, 'cause I love the words that he used. Can someone explain to me how this is still the hour of nine? Lee.

Lee: 'Cause *it hasn't gotten to the 10 yet*.

T: *Hasn't gotten to the 10 yet*. Or what, what was that great word that Brendan used? It hasn't--?

S: It hasn't passed the--

S: *Clicks*.

T: What did you say?

S: *If it hasn't clicked*.

T: *Clicked onto the 10 yet*. That's right. It hasn't quite clicked onto the 10. All right, fantastic.

In our final recorded lesson on Day 4, Matt re-created the focus text in negotiation with the students through a written cloze exercise on the whiteboard. He had written up the text before the lesson, but left some blank spaces to discuss with the students.

Extract 8: **Big loud voice** (Lesson 4)

SS: [Reading, loud voices] THE HOUR STARTS WHEN THE HOUR HAND POINTS blank TO A NUMBER ON THE CLOCK FACE.

T: Can anyone remember, THE HOUR HAND POINTS, and this is the key word, THE HOUR HAND ..THE HOUR STARTS WHEN THE HOUR HAND POINTS..

Lee: To a—straight to a number

T: Big loud voice. Say it again. When it points...?

Lee: Straight to the number.

T: Straight. You remember? It has to point straight to the number. If it's pointing straight at the number like this clock [holds up a paper clock]. Is it pointing straight to the six?

SS: Yes.

T: So it's starting the hour at six. So when it points—what did you say, Lee? Straight to a number on the clock face. Now, who remembers the second part? Let's read it. IT — everyone [pointing to each word].

SS: IT STAYS THE HOUR UNTIL IT blank --

S: Click.

T: Remember yours from the other day? Yes, Joanna, what does it do? It goes- ?

S: Clicks to a next number.

We chose this sequence of extracts because they show a gradual handover of language to the students. In Extracts 4 and 5 the students' contributions were minimal and Matt carried the focus

language on the students' behalf, although he explicitly marked new learning (*this is the most important thing I need you take away for tomorrow, okay?*).

But in Extract 6 Brendan demonstrated that he had partially appropriated the focus language: *It hasn't clicked to the new number*. Although he diverged from the wording of the focus text, he was grammatically and conceptually accurate and consistent with the intent of the lesson. Then in Extract 7, Matt received several responses to his open invitation to the group (*Can someone explain to me*), all demonstrating various aspects of students' appropriation of the focus language.

In Lesson 4 (Extract 8), all students could 'voice' the language through reading the focus text aloud together and the cloze activity. While not all of the students would have been able to produce the language without the written prompt at this stage, the activity was important because it gave the students a visible reference to the text, so that they no longer needed to retain all of the language in their heads. Reading and voicing the text together helped them to consolidate the language, as a step towards appropriating it.

As in the early extracts, Matt continued to use strategies that supported this process of handover. He continued to use the collective 'we', implying both the group's authority and mathematicians' interests: *Now we've found something really interesting about the hour hand* (Extract 5); *But we know something about this hour hand* (Extract 6). He invoked reciprocity by attributing important new academic language and knowledge to students (*And let's try and use Brendan's words; What was that great word that Brendan used?*).

An essential feature of Matt's teaching throughout was that he adjusted questions contingently, cuing and reframing to find a level of question that students could respond to. He frequently used oral cloze as a questioning strategy, leaving a sentence unfinished (or omitting a word) with the implicit expectation that a student would complete it (*I know it's going to be what o'clock; it's going to be half past...?*). Oral cloze maximised success from students with minimal risk of failure. Matt also continued to use question openers (*Who can remember...? Who can tell me ...?*) as a low-risk invitation to all, and to remind students of prior knowledge.

Notably, by Lesson 4 he was not affirming students' correct answers so frequently. The implied message here was that 'we are all members of this discourse now, and we can move ahead with our business without the need for continual feedback'.

Learning to teach dialogically

The question of how much teachers should talk is complex, particularly in a context where the students struggle to contribute. We might assume that if the teacher talks more, the conversation will be less dialogic (Edwards & Mercer, 1987). But without a significant amount of teacher talk at the beginning of the topic, the students in Matt's class would have been shut out of understanding why we measure time.

We suggest that, even though Matt's teaching style superficially appeared at the outset to be more monologic than dialogic, he built dialogue incrementally, creating small but important shifts as the balance of classroom talk changed. In this way we came to think of Matt as carrying the language and technical knowledge on behalf of the class, 'holding the conversation in his head', until the

students began to gain control of the language and knowledge for themselves.

We are certainly not arguing that all teacher monologue is the kernel of classroom dialogue. Matt explained the importance of scaffolding contingently, 'gradually releasing control of the language to students as they consolidate their understanding on a deeper level, requiring less and less scaffolding'. He continued:

You need to absolutely listen and be responsive, because [it's a] contingent level of scaffold, It's no good standing in front of kids and only giving them what you want to give them if they're not ready to accept it. So you need constantly gauge the level of take-up. So they might have the right response but I can see they're not quite sure so we might consolidate it in a different way.

We acknowledge that the lessons presented here were only very small steps towards the students being able to talk mathematically, but Matt's careful introduction to the technicalities of telling the time set the students up to produce on-topic talk, gradually becoming what we expect as classroom dialogue.

We found the mechanisms for this dialogic teaching in Matt's pedagogic strategies; demonstrating Alexander's (2005) criteria of collectivity, supportiveness, purposefulness and cumulation. The one criterion we did not find extensively represented was reciprocity (Alexander, 2010). Reciprocity assumes shared understanding and mutual respect, that all class members are invited to contribute to the conversation. In the four lessons we observed, we did not observe students initiating confidently and proposing new ideas, other than responding to teacher questions, but we did observe plenty of mutual trust and goodwill. We suggest therefore that the foundations of reciprocity were being established as Matt created alignment, invited students into the conversation, affirmed and built on student contributions, and attributed ideas to students.

In conversation with Matt, we reflected on what is important for teachers developing dialogic skills. Alexander (2005) noted that 'cumulation' – building content over time - may be one of the most difficult aspects of dialogic teaching. One way we addressed this was through the focus text, which served to anchor in Matt's mind the language he wanted students to appropriate, and significantly helped him to work towards the goal of handover. Working with a focus text in mathematics was a new strategy for Matt and he later reflected that the technique clarified for him 'just how important it is to get the language right when teaching ESL learners. It is important to find the "right" terminology, and use it consistently'.

He added that the effort of 'nailing down' the language early in the lessons had paid off:

It is well worth investing the time and energy building a solid base of understanding at the beginning of a learning cycle. The trade-off is that this can actually increase the rate of learning later in the cycle.

As for Matt's strategies for building support and collectivity, he reflected that these were skills that he had internalised over time so that they were now largely automatic:

I think it's intuitive in the way I talk with a group of kids, it's certainly a collective thing. I think I'm trying to get everyone on the same page as much as possible.

But he agreed these are not easy skills at the outset, and consciously acquiring them and being attentive to the students at the same time was extremely challenging:

There's so much going on, there's so much to attend to, that actually the poor kids sit on the mat, and they're almost at the bottom of the list. And then you get the hang of it and you move to that unconscious competence.

None of this is to deny the importance of intention and energy:

Talking about time and hours can be monotonous, but if you go in with a tone and energy, with excitement and interest you can see the kids get animated.

In conclusion, the setting of Maningrida highlighted the challenges of creating supportive and goal-oriented classroom dialogue. Matt's lessons provided a powerful opportunity to reflect on what dialogic teaching might look like in a remote Aboriginal context from the dual perspectives of researchers and teacher. Matt demonstrated both the value and the skill of respectfully inviting students to learn with him.

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