The NCETM Podcast Episode 82

Oracy in the Maths Classroom: Part 2

Hello and welcome to the NCETM Maths Podcast. I'm Julia Thomson **(JT)** from the NCETM Communications Team and this is part two of an episode on oracy in the classroom with Jane Hawkins **(JH)**, my colleague at the NCETM, and Kathleen McBride **(KM)** from Voice 21, the UK's national oracy education charity.

If you haven't yet listened to Part 1 of our conversation, I would recommend you start there. In this second part of our conversation, you'll hear my guests refer to Talk Tactics and Talk Trios. These are strategies teachers can use to promote different types of talk in the classroom and scaffold student discussion skills.

And now, let's jump right back into the episode.

So, if you can come back to the work of the Research and Innovation Work Group (RIWG) and what it's been doing. You've both been closely involved with it: can you tell me what's been happening and what the impact or outcome has been? Jane, can we start with you?

JH: The Work Groups have each been focused on a different thing. RIWGs are designed to be bespoke and to meet local need. So, each Work Group's had a different focus. Some have been focusing on the Voice 21 Talk Tactics and exploring in detail how a specific Talk Tactic might work in a maths classroom context. So, for example, some Work Groups have been focusing on using Talk Tokens to develop and establish routines for talk. Other Work Groups have been thinking about different task types which can be adapted or used specifically for the purpose of eliciting really rich mathematical dialogue — perhaps comparing solutions to a question and students discussing and evaluating various solutions to the same question. And some Work Groups have been focusing on different talk pedagogies maybe, or teacher moves or actions that are explicitly about structuring talk in lessons and deliberately planning for students to develop their mathematical oracy, as a really intended part of that maths curriculum.

JT: So, what's been the outcome so far, do you think? How are the teachers in the group finding it?

JH: I think, very generally, that teachers have found that when they pay attention to oracy in their classrooms, their students can make really significant progress really quite quickly, and that the strategies that they're employing are supporting the previously most disadvantaged students in their class.

Explicitly teaching language, and things around agency and citizenship and involvement, have had a really positive impact on some disadvantaged students in particular Work

Groups. I think teachers are finding that, where they plan to make time for talk, they actually gain back a lot of time in terms of their assessment for learning about students.

They better understand what their students do and don't understand, so they can adapt their teaching for that. And where teachers are shifting their pedagogy slightly in primary schools, with a view to thinking about the maths curriculum, lots of our primary teachers and primary colleagues are finding that their practice is shifting across all their subjects, because the culture has shifted to value and prioritise talk.

So, it's having more far-reaching benefits, rather than just maths, particularly in the primary context where the teachers are seeing their children all day.

JT: That's interesting. I was talking to a Work Group Lead and a maths lead at a school in Tyne and Wear, in a very deprived area. A lot of children from very low-income backgrounds, where there are lots of social and emotional kind of issues, and they were having a big focus on vocabulary, because they started using the NCETM Curriculum Prioritisation materials. She said the impact on it was just really phenomenal. The children, even the high attainers, were more able to articulate what they were thinking.

And they had started to move it across the whole curriculum. They were doing lots of work around oracy, but their main focus was on mathematical vocabulary and terminology and giving children tools to be able to use.

Kathleen, have you got anything to add to what Jane has just outlined about the RIWG and its impacts and outcomes? What have you observed?

KM: So, for the last couple of years, and I'm thinking specifically about the work I've done with the Boolean hub and what we've chosen to focus on each year. The first year we worked together, we zoomed in quite far really. We started with quite a narrow focus, and we wanted to be really specific in terms of the strategies that teachers in the Work Group tried. That makes the impact easier to measure and so on. We looked at things like using student Talk Tactics, but teachers in that group thought really carefully about what those Talk Tactics look like in the maths classroom, and how the Voice 21 Talk Tactics might be adapted to better fit the nature of mathematical talk.

People found that had a really good impact on participation in talk, on encouraging students to ask each other questions and to take more accountability for their talk as well. So, I think a lot of that was taking some of the onus off the teacher and handing that to students and equipping them with some of those strategies that enable students to manage their own talk. So, we looked at specific strategies, like the Talk Tactics, we looked at groupings. Some of the teachers in the group became really passionate about trios of talk rather than talk partners and what seems like a really simple adaptation to their go-to vehicle for talk, being talk partners, as it is for so many of us.

But the use of trios opened up the ability to assign listening roles or to teach students how to effectively summarise the main ideas of a group and so on. So, just a really simple shift in teacher practice there led to much more student agency and students' ability to articulate

what they were learning, what they were discussing in that group work, and therefore they had to take a bit more accountability for it as well.

I think it has lots of knock-on effects when you make a subtle shift like that. And then, last year, we of zoomed back out again. We realised that the strategies are really helpful tools to trial and to get quick wins in the classroom, and you can see a change in practice really quickly, but actually for teachers to be able to communicate the impact of oracy in mathematics beyond their own classroom and to begin to influence other teachers in their department or their school, we realised that we really needed to make a strong case for oracy, and a strong case for oracy in maths. Of course, the strategies are really important, but so is taking that step back and teachers understanding why they're focusing on this and being able to articulate that across their schools as well.

It's great to have a teacher working on their own practice and making positive change in their own classroom, but ultimately, we want those changes to be communicated and spread across the school as well. We want all students to benefit from that good practice. So that became more of our focus last year, as well as us really trying to understand and being able to put our finger on what high-quality dialogue in maths looks and sounds like, and in order to identify that, we visited some schools and saw some practice in action. If you read our Talking Point publication from last year, which is on our website, there's a write-up of one of the schools that we visited, Summer Hill.

So, we've focused on a range of things, but I think what we came to understand is that we needed to do both things. We need to make the case for oracy in maths, but we also need to provide the strategies that are a good entry point for teachers who might be new to this as well. And it's bridging those two things, which I think is our next step. How do we take both ends of that spectrum and give teachers the tools they need, but also the knowledge they need to make the case for it in maths as well?

JT: So, in terms of the explicit teaching and development of communication skills with an emphasis on maths, what does successful oracy look like in a maths classroom?

JH: Oracy has a really important role in supporting students to develop their reasoning skills and develop their problem-solving skills: explaining, justifying, proving and all of those kinds of things. We can best understand where students are in their learning if we listen to them, I think. There's also creating opportunities for perhaps some of your more reluctant speakers in lessons to have an opportunity to speak and share their thinking in maths lessons.

That's really important, I think, and one of our Work Groups focused specifically on students asking questions of other students as well, learning how to do that really evaluative and critical bit of thinking in maths lessons. I think that's really important. Another thing that's come out really strongly is the extent to which teachers value the impact and the importance of talk in their maths lessons. Exactly as Kathleen's saying, as teachers find out more and know more and have some tools to start to implement some of those changes in their classroom, they are really finding the value in students' talk and valuing student talk as part of the learning process.

JT: The Work Group Lead and teacher I was talking to about implementing the NCETM Curriculum Prioritisation materials in her school, was talking about the nervousness around how much talk teachers were doing, and a nervousness that children weren't getting straight to the independent task, because previously - and we've been talking about how we reflect back on our teaching practice - when I was teaching, we were always told, you need to keep that talk to a minimum. Get the children working straight away and they need to be getting involved in that independent task and getting their work on paper. And if you were talking too much, or there was too much classroom discussion for the first part of the lesson, that was seen as detrimental, that you'd failed in some way.

I remember having my eye on the clock, thinking: have we been talking too much in this lesson? Has there been too much talk? And it seems like there's a quite a big - maybe cultural - shift that's needed to get that environment where teachers don't feel that they're doing something wrong if there's a lot of talking and back and forth, and children are articulating their thinking because that's learning too.

KM: I absolutely agree with that. I think that the teacher role in developing students' oracy skills, just as being the person modelling so many of the skills involved — so modelling what probing looks like, modelling an effective challenge or asking somebody to clarify aspects of what they've said — is really key.

I think I agree that sometimes teachers worry. There's a bit of a tension, isn't there, because on one hand we're saying we want students to talk more and yet, there's the old statistic, that the average student says four words per lesson or something like that.

We've got that at the back of our minds. We want students saying more. So, we don't want to be dominating the talk in the classroom as the teacher, but I think also we really do need to think about, as teachers, how are we using our platform as the teacher in the room: model the thinking and the reasoning and so on, through our language.

I think it's really important that the teacher sees themself as a really core instrument in developing their students' oracy. And we don't hear this so much now, but there used to be a bit of a challenge that if we're getting students to talk more, well, what is the point of the teacher then? We're just facilitating. But I think, all the time, we're modelling and we're extending and stretching students' ideas and playing them back to them and asking them to tell us more and so on, so that role of the teacher in classroom talk is essential.

JH: And maybe that links really nicely with the different types of talk that you might hear in a maths classroom, and teachers being aware of the different types of talk in a maths classroom, and then deliberately creating opportunities for each of those different types of talk, because my experience has been that lots of what students have an opportunity to do, maybe at the moment, is presentational talk.

They've already done their thinking, they've already done their work, and then they're presenting their answers back to a teacher or a peer, whereas classrooms developing their use of exploratory talk is a really different type of talk. There are different norms and also a different purpose. And the four strands from the oracy framework might look quite different

when you're talking about exploratory talk, as opposed to when you're talking about presentational talk.

So, there are different types of talk available for teachers to model and to plan for, I suppose, in a maths lesson - stem sentences are quite common: they certainly appear in the Curriculum Prioritisation materials and some of our primary Work Groups have worked on developing the use of stem sentences in their talk.

And that's very much one type of talk we might expect to hear in maths classrooms. One of my primary colleagues described their use of stem sentence really nicely as the oral representation — the oral summary of understanding — of students' understanding and learning.

That's a really nice way of thinking about stem sentences, but they are only one type of talk. We might expect to hear some choral response in some classrooms sometimes - hat's another type of reasonably structured talk. But then we also want to make sure we're creating those opportunities for that really rich, messy talk, I suppose, that exploratory bit as well, where students are learning through their talk.

KM: I just wanted to build on Jane's points there. And I think this is where we can see perhaps the uniqueness of talk in the maths classroom, and of oracy in the maths classroom.

Just to contextualise, we've often historically talked about a progression of talk and what that looks like, and how that might go from students engaging in exploratory talk as they're understanding a new idea or a new topic. And we can gradually move them towards building and consolidating that understanding and knowledge and being able to engage in something a bit more presentational.

However, I think in the last few months through our work together what I've come to realise is that in maths, it's almost the other way around. Because I think a lot of what you've mentioned, the stem sentences and the choral response, that's almost more presentational as a starting point. And we'd really love students to get to the point of being able to then apply that mathematical understanding and having the fluency with those core concepts and ideas, and to be able to apply that in more exploratory talk, as they use that knowledge to create new knowledge and approach problems creatively with that. I know it's not as neat as I'm making it sound, that it's a reversal of our usual exploratory-to-presentational continuum, but I think there really is something in oracy in the mathematics classroom being a little bit flipped, a little bit different. And that if we can get students to a point where they're engaging in exploratory talk and genuinely being able to think creatively and inter-think, then, for me, I think that's the win in maths.

Quite often oracy and talk is seen as a vehicle to share learning in the classroom, for the teacher to hear what you think or for a student to answer a question. But it's even more powerful and, I would argue, exciting if students can use it as a tool to build knowledge rather than just share knowledge, and actually engage in activities that require them to think together, or inter-think as people like Neil Mercer would label it.

It's when we see talk being used to create new understanding, a new way of seeing a problem, and therefore the world, and thinking about things differently, then that's where it feels really exciting for me. I think that's more going back to that idea of oracy being more than a strategy.

It's more of a kind of philosophy of teaching for mathematics that I'm really excited to keep unpicking and understanding through the work that we're doing together.

JT: It seems to be a really powerful learning tool. The presentational language and the formal language, the choral responses and the stem sentences, and then children taking that to their exploratory talk and having a vehicle to be able to express themselves with each other and the teacher. Then moving back sometimes to making those generalisations, where they can apply what they've been talking about, and they have the formal structure to be able to then crystallise their learning and express it back. A cycle almost: a way of learning that utilises that talk.

KM: I love that idea of a cycle because, again, I think that just progresses our conceptualisation of talk and how talk itself progresses across a lesson or across a scheme of learning.

JT: Generalisations are really challenging: to get children to make a generalisation, he confidence needed to make it and, also, having the language to be able to make it. So, when children can make a generalisation independently, really quite profound learning has gone on, and the input and level of work that a teacher will have gone to, to be able to get a child to be able to make a generalisation based on a set of assumptions, in maths is really quite huge, and you're not going to get that without that talk, without that verbal communication. You're not going to get that by doing things on a piece of paper — it's just not going to happen.

I know from my own experience in the primary classroom: very rare, *very rare,* that a child is able to perfectly articulate a mathematical concept using the right kind of terminology. And, where you get to that, some really, really powerful and effective learning has been going on.

So, Jane, do you think we neglect oracy in the maths classroom in secondary? Why do you think it is as important for older students as it is for maybe our younger pupils?

JH: The Oracy All-Party Parliamentary Group Report identifies that students and young people can develop their oral language skills and the importance of continuing to develop those up until the age of 25.

So, this is very much not an Early Years thing, it's not a primary thing: this is for all of the students that we have, certainly up to at least 16, but beyond that as well. And at that stage it might include things like preparing students for interviews and applications and employability, those are all really important skills, as well as a different part of their oracy education.

I would say, in terms of secondary maths classrooms, it is potentially more difficult in the first instance to establish the classroom culture than it might be in a primary setting because, probably in a primary classroom, they've got the same teacher predominantly for most of the time, whereas in a secondary classroom you might only see that group of students together for three or four hours in total in a week.

So, potentially it's a bit of a slower, longer game to develop the classroom culture to a point where all of those students are happy to articulate their mathematical thinking.

But it's still really important to do. I think that doesn't mean therefore we shouldn't do it: I think you just need to be prepared for it to be a slightly longer game, and to pay really deliberate attention to it. Our curriculum often feels like you've got a lot to cover, but students really deeply understanding mathematical concepts in the first instance puts them in a better position to make progress in terms of their maths curriculum journey with us through to GCSE. So, providing that platform and supporting students to develop those skills, of making connections and proving and justifying, reasoning and problem solving, I think we've got to get them right. It's my belief that it's an entitlement for all students to be exposed to and have opportunities to develop those skills, that we can work on really explicitly, when we're thinking and developing our oracy. It's really important at all phases.

JT: I imagine that if a secondary school were going to implement it across the whole school, it would make it so much easier if lots of those strategies were in place in every single classroom.

Thinking back to some of the mistakes we may have made in the past with our teaching, if when we used to plan lessons we used to think about learning styles and ‘what am I doing for my visual learners?’ and ‘what am I doing for my learners who like to move around?’, we can certainly think about, in the lesson, ‘how am I going to draw out opportunities for high-quality talk and high-quality oracy interactions?’.

JH: Anyone who's ever done a ‘pupil pursuit’ knows that the same group of pupils can behave really differently in different classrooms around a secondary school.

If consistent oracy strategies are in place they get to learn and they know what to expect when they come into your maths classroom or when they go into their science lesson or when they go into their French lesson. So, it really is possible to create the conditions in which all of those students feel valued and feel respected and, in turn, where they can pay attention to their learning in a slightly different way. I would suggest, when they're having an opportunity to articulate their thinking and be heard, it makes a real difference to the way they choose to engage with learning in that environment.

JT: Kathleen, can you share a few ideas teachers might want to explore in their classrooms?

KM: Absolutely. Any teacher who is keen to begin exploring and experimenting with oracy in the classroom, a couple of years ago, I would have given you a ‘top three things’ to try. But I think now I would really suggest that the first thing that any teacher does is step back and listen and really lean into what your students are saying when you are asking them to talk.

Take a bit of time to self-reflect and evaluate what's the state of play currently in your own classroom. How are students using language? How are you using language? And, just thinking back to last year's Work Group, we did ask teachers to record just a little episode of talk in the classroom and they came back with transcripts of their talk. That was such a powerful tool for raising their own consciousness about how they were asking questions, but equally, about the kind of language students were using with the teacher and also amongst themselves. And just doing a little bit of a diagnostic, taking that time to diagnose where talk is in your classroom, would be my first recommendation.

You can do that using the Oracy Teacher Benchmarks from Voice 21. There is a self-evaluation tool included in that document. And then, trial a couple of things: if you know that students need to develop listening skills, try a grouping that really harnesses those skills, like a trio.

I would also say, identify where you can create really open stimuli for talk. Because one of the things that I have heard recently is that there aren't many opportunities in maths for students to discuss and debate, because of the nature of the subject, and I could imagine people are crying out in response to that! But of course there are! So, think about it, think about what stimulus for talk would really open up discussion amongst students, and then step back and listen to that. It could be really simple, it could be something like a Talking Point: Talking Points by Lynn Dawes is a really great collection of provocative statements, developed, I think, within science initially, but they work brilliantly across the curriculum.

Give them a provocative statement, that students are compelled to respond to, and then give them the tools to respond and to engage in that dialogue. If that's, a sentence starter or some vocabulary that you'd like them to try and use, or a Talk Tactic and so on. I would really suggest step back and listen in.

Create an engaging stimulus for talk, but then think really carefully about how you would scaffold the talk around that, so that all students are able to participate. And then just see what that sounds like and see where talk is in your classroom and take it from there.

I feel really strongly that oracy isn't a strategy: there's no silver bullet, there's no particular activity that's going to work for every teacher across the ages and phases. It's more a stance: it's more a philosophy of teaching that we, as teachers, as that first step, really understand the quality and the opportunities for talk that are in our classrooms and then build up from there.

JT: It's possible that these have been used by the RIWG, but the NCETM's Checkpoints are really great exploratory tasks for Years 7 and 8, which can elicit a lot of debate and discussion, and some different solutions and ideas which would probably be ideal for that.

Just as a final question for you Kathleen, what are the misconceptions about oracy or what should teachers try to avoid, do you think?

KM: This is a really important question for now: as we move into the next year or so, oracy is going be on the agenda, it's going be discussed, not just in schools, but in the media, in politics and so on.

I think being really clear about what oracy is and isn't, is really important, and I mentioned that earlier. Some of the common misconceptions we hear are that oracy is attempting to get students to speak a specific way - for example, teaching oracy means students speaking in full sentences, or students using standard English all the time, or students using a particular vocabulary all the time.

What we are really passionate about is stressing that oracy is inclusive and that we need to really value the language and the voices that students bring into the classroom. Yes, students will need to learn vocabulary in order to be precise with their ideas and their mathematical thinking and answers and responses and so on, but we should always value the language that students do have to express and conceptualise as a first step.

A common misconception is that oracy is for English teachers as well. Across our membership, the majority of oracy leads in schools are from English and humanities backgrounds: that's natural, and it’s understandable that oracy has historically sat there.

Obviously spoken language used to be an assessed part of English and of GCSE English and so on, and you can understand why that's the case. However, we really want to try and shift that a a lot, and encourage more oracy leads to come from maths backgrounds, STEM backgrounds and so on. And to really fly the flag for oracy in areas of the curriculum where we haven't so far seen it so visible. So, part of that is on us to make sure that the relevance of oracy in mathematics is understood and that we're supporting schools in the best way that we can.

JT: Thank you for that, Kathleen. And how many animals do you have? [Laughter]

KM: Too many!

JT: Animals have been expressing that you have been talking for too long!

KM: Oh, my goodness. Can you hear my dog whining now?

JT: Throughout that last question, but I don't mind! The NCETM is an animal-loving podcast.

KM: I mean, I have to introduce him to everything I do. Cause he always makes sure… he's also just had an operation. So, he's feeling very sorry for himself.

JT: Ah, bless him.

We're coming to the end of the podcast now, and hopefully we've inspired listeners to take these ideas back to their schools, back to their school improvement plans, and look at taking

a more focused approach to oracy. I'd just like to end by asking you both where people can go to find out more. So, Jane?

JH: Thank you. One of the key recommendations from the Oracy All-Party Parliamentary Group report, released in 2021, was to raise the profile of oracy in education. And I'm so pleased to have Kathleen here with us today to be part of that, specifically for the NCETM and in maths education, just raising the profile of oracy.

So, if you're interested at all, please get in touch with your local Maths Hub who might well be hosting one of our Oracy RIWGs this year. Find out from your local Maths Hub how you can get involved.

JT: Kathleen, what about you?

KM: So, anybody who would like to find out more about oracy in general or about the work that Voice 21 does do visit our website, voice21.org, and also follow us on Twitter @voice21oracy. We run lots of taster events, we publish various reports throughout the year. We've got several coming out this year, and you can also look back at our previous impact reports, looking for the evidence base for anybody who's is keen to brush up on that. The last couple of impact reports have featured schools whose work on oracy in maths has led to some great impact. So, really worth having a read.

JT: Brilliant. And important to note as well that getting involved with your Maths Hub is also free and fully-funded. So, I don't think any of the things that we've mentioned today have any cost implications at all. I'd like to thank Jane and Kathleen for joining me today. We really have just scratched the surface. It's such a big topic and so important. I hope we've left you wanting to find out more and wanting to do more in your school, in your classroom.

That brings us to the end of Part 2 and concludes our conversation, at least for now, on Oracy. I hope you enjoyed it and found everything Jane and Kathleen had to share as interesting as I did. Don't forget to check the show notes for links to all of the information, research, and resources mentioned by Jane and Kathleen in the episode. If I can ask one more thing of you before you go, we would be so grateful if you could follow us on your podcast app and rate the show. It really helps to get the podcast out to a wider audience, and you can also follow the podcast on Instagram, @TheMathsPodcast. Thank you so much for listening.