

Q&A with Science Teacher Carmen Kenton, Riccarton High School

Tell me about why and when you, your school, your science department, decided not to use streaming, or why and when you shifted from 'fixed ability' grouping to alternative ways of grouping learners.

Firstly, I started about 2008 to think about this because I got an opportunity to go on some professional learning around supporting dyslexic students. I didn't know very much about neurodiversity then. And I actually learned that they're really intelligent. They just struggle to read, but yet they end up being put in these groups. And the kind of reading they have to do is not intelligent reading it's baby reading. They begin to believe that they can't learn. And so, they often develop self-protective behaviours, which then ends them up, like outside the classrooms somehow, either by referral or some kids at primary school get benched, apparently, where they have to go outside and sit on a bench. And some kids spend hours there. They get benched. And so, they miss out on learning, they believe they can't learn because they're always in this baby group or dumb group or cabbage group or however, they socially label it and then they start acting out because it's a protective behaviour to not be in that group. Yeah. It highlighted to me that kids who are lumped into those groups aren't dumb. They are capable of learning. They're highly intelligent. They just don't do things the way everybody else does. And I guess that was kind of the start and I started exploring how to support those learners more, how to find new ways of unpacking what they understood so that they could show me what they knew, what they had learned, what that made sense of, yeah. It takes a while, you know, that's just one course that I went to, but it didn't like turn me into this super amazing person or teacher who was able to suddenly do great things for all the kids, right? It takes time. Little nuggets, like squirrel, collect them. I think that ability grouping is a real deficit thinking process because it's based on students' needs and it often comes with this – this 'student needs fixing' kind of attitude rather than a strengths based. I like the flexible groupings, the heterogeneous grouping processes, I like that, because it doesn't have that deficit thinking. It's not about fixing a kid. It's about building on strengths and giving an opportunity for that to come out.

Can you tell me a bit more about that, about you recognising that that's what those behaviours were?

I remember one day I had this particularly rumpty class one year. We'd done a couple of experiments and some written activities early in the year, and I kind of gauged where they were at collectively as a group, and then I offered some learning. We unpacked the language that was in the learning, and we did all this. And I had three boys in the class cry because it's the first time they had ever actually understood what they were doing. And they're teenagers and kids don't cry. Not boys. Not laddish kind of boys. Because they had – nobody had ever bothered.

Tell me about neurospicy.

So neurodiverse is commonly known, but I reckon neurospicy (is where you have) more than one neurodiversity going on for them. So, there's dyslexia, ASD, ADHD, anxiety, dysgraphia, auditory processing. And they just bring different ways of thinking. They have strengths and they bring different ways of thinking to the processes of learning and making sense of stuff.

What do they tend to ask questions about?

Usually, it's questions that connect their learning to something they have already known or might have picked up somewhere else or wonder how that might be connected if it is at all. And sometimes it's just randomly feel questions – not about what we're learning at all.

If you think about this class and the rich diversity in the class, what can you tell me about how it's different for you and for them in that class – thinking about the classes you've taught before at year 11, that aren't as diverse.

I think there's a work ethic that's quite different in this class compared to other classes. I think that the social culture that the students bring to the class is less important than the learning culture whereas in other classes, sometimes the social culture runs the learning culture. Do you see what I mean? It doesn't feel that way in this class. It feels the other way around. It feels like the learning culture runs the social culture.

Year 11 classes, are they mixed? Are they streamed?

This school still streams, maths, English, and science, despite me trying to remove that, but they do. They say that the students pick those classes. I argue that if you've spent your entire ten years being ability grouped, you believe you belong in those lower streamed classes and so therefore you will choose those lower streamed classes. You won't choose something more academic.

If I stepped into your classroom and sat on the side, what would I see or hear in terms of how you group the learners?

So, there are lots of different ways the learners get grouped. Broadly, I run two kinds of, I don't know, pedagogical systems, I guess. There's flip learning and teacher lead learning. If they're in flipped learning, they choose their own topic, they might be working on it with one or two others, but all the resources are given to them straight at the beginning and they work through it at their own pace. I touch base with them. I have in Google Classroom an open assignment for them to post things that they want feedback on, and some kids prefer to have their feedback just in conversation. So, they bring things to me, and we talk about their ideas.

The teacher led learning is just standard teacher, like traditional teaching – teaching it from the front of the room. Those kids come and sit at the front of the room, and we'll do an activity together and then I'll leave them to do the continuation of that activity or something like that, and then it's in that time do I go and help the flipped kids. The teacher led kids also choose their topic, but they have to do it in a democratic way so that they're all learning the same topic. Right. So, they vote. And whatever the majority topic choices, that's the one we do next.

Do you give them a set to choose from?

Yeah, there's a collection of eight or nine for year 11. I mean, you would never get all topics done in a year. But also, I run, very specifically, physics, chemistry, and biology type workshops, just little snippets that they might find useful and interesting depending on what topic they are learning and they buy into – little workshops and we work together. I'm also running little workshops on the external assessments that we have chosen to use in this course. They are run twice a week. They get external assessment learning in whatever topic they've chosen, but I run deliberate teaching workshops like they're teacher lead, the students will do it together. So, there's that kind of dynamic, but then within that there's practical work, so some groups might be doing practical

while others are sitting down, doing something else. During the workshops, I'm really quite deliberate about the groupings that I use. Some of the things I've done, last week I ran a running dictation around the features of science and they worked in pairs, they got to choose their pairs, one was a runner, one was a writer, but every three minutes they had to swap. The week before, I ran an activity, where there were four articles around the room and they had to work out using clues in the articles, what was the science's idea being developed? And the first article they went to, they paired up with somebody, they got to choose, but the next article, they had to pair up with someone different. So, they had three different pairings and different people. Usually they choose someone they like, you know, that they sit with for the first one, but after that they had to choose someone else. I've got some cards that sometimes I use for around making sense of texts. And there's four cards that sometimes they have to work in a group of three or four and there's someone who's responsible for leading the discussion around summarising. Someone who's responsible for leading the discussion about connecting it to learning that they've already done in our class. There's a questioner and they don't have to do the summarising or the connecting themselves. They have to lead that discussion. So, there's conversation points like little questions that they can ask to lead that discussion and do it collectively and an illustrator is the fourth person. So how do they make a visual representation of that summary here? They really like that one. My year 9s really like that one too.

So, the flipped, tell me about how you came to using that as a pedagogical technique.

It was just sort of something I explored and thought, that's interesting. But when I got here, the science department heavily uses it, especially the chemistry department and other areas of science have got on board, so biology now uses that heavily. We use it heavily in juniors, although sometimes I don't - depends on the dynamic of what the kids need in the room. But certainly, in seniors, it's really common. So, we make little videos about the content and there's work sheets and things like that, and it's all laid out in order, it has a common format so that they always know what they're looking at regardless of which subject they're in. They can work through it at their own pace and then there's also mastery points along the way where they get to the end of a section of learning and they have to do a mastery activity, which then forces them to come and see the teacher about that section of learning. We can have conversations about it and things like that, which is quite good for checking in because it's quite an easy system for kids that just kind of wander off. At the end of a chunk of learning, there's a mastery activity of some kind.

What are some of the ways you help them see the connection between the theory and the practical?

I make sure that we have conversations after their practical, to link what they've found in their data to the concept that they were learning in the first place. Whether it's in a flip situation or teacher lead, there should be always those conversations and sometimes I draw diagrams or I write out that sort of concept rule and then, so how does your data fit with that concept rule?

Tell me about your topics.

I can't remember the names of them all. We've got energy saving, the science of cooking, plastics, our whenua, which is about why New Zealand is unique, including plate tectonics and the kinds of taonga species that we have here.

They sound like transdisciplinary.

Yes, they are all very transdisciplinary. We've got one on flight, which is mostly about aerospace, and the warming Earth. There are two topics in the process of being made. One is growing, gathering, and composting.

So, those are topics across the whole department?

My class, we always do Te Waihora at the beginning of year 11, which is around the health, the wairua, of Te Waihora. Te Waihora is lake Ellesmere and that's part of our cultural narrative because this Kura used to be on the pathway between Putaringa Motu, which is Dean's Bush and Te Waihora. There was a dry patch here in the swamp lands and so they often would camp the night here and then it's like a crossroads kind of place here. And so, I built a unit around Te Waihora for Year 11 and we look at why it's in the state it's in and how the Wahine storm affected it and how farming runoff affects it and then we look at possible solutions that could fix it including ones that are being done.

We explained to them why and the Te Waihora topic is Teacher lead, it's not flipped because there's so much te ao Māori in it that we felt we needed to lead the students a bit more through that than rather than just let them go. Concepts like whakapapa and the difference between tiakitanga and kiatiakitanga are quite hard for them to understand, so we have led them through those processes quite deliberately.

Thinking about teaching in the past and ways you've taught, or were taught to teach. What have you had to change? What did you change, especially around grouping?

Everything. I was taught one size fits all. The content doesn't change, but the way you present it changes, the way you might get students to unpack it can change, should change. I just stood and delivered. Everybody did the same thing at the same time. We all did the same experiment at the same time and the same way. I wrote notes on the board. Everybody copied them. That's what I was taught. And I did that for years. And it's what I experienced as a learner. It's taken quite a while for me to shift, I guess. By the time I went to that PL in 2008, I had been teaching for 8 years. And by that time, I was the head of a department, and I still didn't know. I still hadn't shifted.

And in the class, when you grouped students to do particular practicals or pieces, you know, activities, what changed about how you grouped those students?

Initially, I just grouped them. I just let them be in their own groups, whatever they chose, but then sometimes socially, that doesn't work out because some groups are better for learning than others. I had a go at seating plans. I did have a go very early on at roll cards, but I just never really got my head around it and so I abandoned it quite early on. Probably because I was still trying to shove through the same amount of content in the same time frame without realising that I had to actively teach how to be socially cooperative. Does that make sense? So, while I recognised that that had to change, I didn't recognise that the speed of which I was shuffling through content had to slow down to allow time for that to be explained. And so, I wasn't explaining it at all or enough. I was just putting it out there and hoping. And like my literacy skills in the beginning, I used to just give out a reading and hope. Yeah, I think that's what I did. I would just put kids together and hope.

But when I discovered the nature of science proper, how it works, and the science capabilities just became so much easier because there was just so much less to teach. Because I'm teaching

investigative skills, not forces and cells, and acids and bases or whatever, I'm teaching investigative skills, and I might get a chance to teach that in two or three contexts during the year and that's okay. And I'm teaching, communicating in science and I might get an opportunity to three times in different contexts, but what I'm teaching is so much less. Even now in year 11, because we chose the science standards, not the other standards, I'm still teaching the nature of science.

You've talked about the Science capabilities helping you change. What other things helped you change? Who and what helped you change?

Oh, my students helped me the most, especially at a previous school that I used to work at because what I discovered is that the more deliberate I am with grouping and explaining why and how that grouping works, the more articulate students become when they're advocating for themselves and their learning. which I find a fascinating correlation and that previous school, those students became incredibly articulate about advocating for themselves and because we have that trust where they know if they tell me something about their learning, I'll make a change, I'll have a go and make a change. Or I might say, I understand, but this is the reason why I need you to do it this way today, and they'll accept that. I think it's about that. It's about me not assuming that I'm the one in charge and that they should just shush and listen. It really is a proper partnership where we help each other partnership.

How often do you change the groupings?

My year 11 class, they sit together wherever they want, but I change groupings every time we do an activity of some kind. If I'm workshopping, then I put groups in place. If they're just sitting there working on whatever topic that they're working through, they're in groups that they choose. So, they change two or three times a week.

And what do practicals look like for the student who's blind?

Oh, just the same. The student, my blind student, she has a tablet. She takes photos or she gets her teaching assistant to take photos for her. And then she can blow it up and see exactly what's going on and things like that. And sometimes the teaching assistant puts things in her hand and then she carries on and does things. She participates in everything. She has a go at everything, all of that. Like, last term we were doing some rock identification using keys for metamorphic, igneous and sedimentary. The teaching assistant just took photos of the rock and then the student was able to blow them up really big and see enough detail to then identify what kind of rock that probably was.

So, you have the same expectations of that student?

Totally. She's sitting the same standards that everybody else is sitting. I just have to make sure I have her assessment resources in Braille. She gets A3 paper copies of all the assessment resources. She gets everything digitally as well. Yeah, she has all the all the special assessment conditions. She gets extra time; she has no time limit to be honest. She gets a teacher assistant with her. She's allowed to use a computer and her tablet. She has a reader writer, all of that. She can use Braille, she has a Brailleer, if she wants. She often uses Braille when she's writing long passages.

What have you noticed about students learning and progress when they're not streamed?

I think students are happier. I think they feel more confident in their learning. I think there is more learning talk in the class, rather than silence or off task behaviour. I think that's what I like about grouping - that social nature of learning - that there's more talk about the learning. I think kids need to talk about their learning so that they can make sense of the language, that technical language, that's part of those contexts and they have to say them out loud before they can write them down or read them. I think they're more articulate about advocating for themselves because they understand how learning works. And if they've tried lots of different kinds of grouping ways of being grouped, they can then say, oh, do you remember that grouping thing we did when we learned about that? Can we do that again? They know what works for them, what they like and what they don't like. I had one grouping activity a couple weeks ago with my year 11s. One of my students, one of my neurospicies came up to me and she said, I do not like this grouping.

Why?

Because it was too far outside her comfort zone. Which is fine. Yeah. I said, that's okay. She said, 'I can't learn it'. She said, 'I'm just going to go home and do it again by myself'. I said, 'that's fine'. So, yeah, that's brutally honest.

And have you found resources on the web or other teachers or what's helped you with that?

Sometimes I find resources on the internet. But my biggest resources AI. Oh, my word.

Tell me about how you use AI?

I might find I come up with an idea, and I want my students to learn about this. So, I had an article, and it was pretty boring. And so, I would just I just type in AI, these are my students. This is what they like. This is that kind of learning that I want. This is the content or the ideas that I want them to learn about. Give me three different kinds of cooperative learning strategies that you think would be great for this kind of learning. And it just spits them out. And then at the end it asks you questions like; do you want a set of student instructions for this? And I say, yeah, I do. AI just spits them out and I just go copy, paste, check. Because you always have to check. I change some things and then we're done. And something that could have taken me half an hour took me five minutes.

Anything else you've noticed about the difference between students and classes who are streamed and those who aren't?

Just the belief in themselves to learn. My own kids got streamed 'cause they were [neuro]spicy and by the time my oldest was in year three, he didn't think he could read because he'd been sent back to the same beginning reading book - you know those little golden books and red books and blue books - every year he got sent back to read the same books and he just thought he couldn't read. The self-belief is probably the biggest thing that comes from heterogeneous group. Heterogeneous grouping just creates this self-belief that I can learn.

So teachers who, think that streaming really works, you know, and if you put your “bright kids” “top” kids whatever, in a class with students who don't succeed or haven't succeeded as well on the tests have been given, that those students are going to be disadvantaged. What advice would you give to them? What might help them? Help them think about it?

There's a huge amount of value in those, “bright” students explaining things to other people. But also, just because you gave a test doesn't mean the kid who isn't bright, doesn't know stuff. They know different stuff just because or maybe they don't like testing. They still have things to contribute. You can have a bunch of bright kids in a class, and they might be socially incapable of working together. But some of those other kids have lots of social capital and they can pull a group together to get it done, right? There's more than just the test result to bring to a social group.

Secondly, streaming or ability grouping isn't about the kids. It's about making life easier for the teacher and so if you had three bands of groups, you know really capable, middle capability, low capability. It's only ever the high capability kids that do sort of all right. But like I said, they might not have a lot of other capital to bring to the party. But the middle kids and especially those lower kids, it just destroys them.

What would be your first steps if you were saying to a teacher, ‘have a go’, develop the skills of, you know, being a teacher of a heterogeneously mixed class.

Just have a go. Just choose one thing and have a go.

You've talked positively, and that positive move in forward direction mindset. Are there some things, though, that you would suggest that people stop doing?

I think if you're heterogeneously grouping your kids and you think, “I'm going to have one bright kid, one medium kid, and one low ability kid, quite frankly, you haven't kind of made it yet. That's got to stop, right? You've got to think of other reasons for putting kids together. Like, this kid has got socially lots of capital. This kid needs a bit of help with that capital. I'm going to put them together. Do you know what I mean? I think that's probably the biggest thing that's got to stop. And thinking or calling them – Oh, my bright kids, or my low ability kids.

Going back to who helped you. Do you find there are other kaiako in the school who help you to move forward with it, or outside in your subject association, or kaiako that you know through other networks.

Yes, I think colleagues are really good, but actually, I think the most important colleague is the teaching assistant. If you are lucky enough to have one or have a good relationship with someone who is a teaching assistant in your school that's not in your class, then they see so many classes and they see all sorts of strategies. My teaching assistant with this class, she says, oh, I was in so and so's class the other day and they use this strategy for grouping. That is gold. They see that from a student's point of view, not from the teacher's point of view, because they work with a student. They're such a rich resource.

What do you say to those teachers who think streaming still works and that's okay?

Kids have a right to access their learning. And so, by streaming and ability grouping, you're blocking students from that right and it's not it's not just a privilege. It's actually a right that students have access to learning and it's even in the UN Bill of Rights for Children and in New Zealand we have that law too. They have a right to access the learning. So, we shouldn't be stopping them by forcing them into a group where they can't access the learning. They can only access some of it, but not all of it.