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CPL Podcast: Planning for Improved Cognition K-6

Host: Carly Boreland

With: Sandra Rowan and Jenny Williams

INTRODUCTION:

You're listening to the JPL podcast from the Centre for Professional Learning. Here's your host, Carly Boreland.

Carly Boreland:

Welcome to the JPL podcast for the New South Wales Teacher Federation Centre for Professional Learning. I'm Carly Boreland and I'm the Editor of the JPL. Today, I'm talking with Sandra Rowan and Jenny Williams about '*creating a thinking classroom*'. We're going to be talking about cognition and how to get our students thinking in ways that will help improve their learning and also make sure that we're also sticking to the NSW Syllabus. Sandra, Jenny, welcome.

Sandra Rowan & Jenny Williams:

Hi Carly.

Carly Boreland:

So Jenny, this idea of '*a thinking classroom*' sounds sort of like well wouldn't classrooms always be thinking classrooms? What else would they be doing? So, what's the new bit? What's the novel bit about what we're talking about in terms of *student cognition* and some new ideas that teachers could try in their classroom?

Jenny Williams:

I think a good place to start, Carly, is to think about the learners that are in our classroom and think about what being in a classroom used to be like. I went to school in the sixties and the pedagogy around learning was very different to what our understanding of learning is now. And so that was reflected in the classrooms then: where the emphasis was on memorising facts and learning content. I think now, in the 21st Century, we have a very different view of what learning looks like and we also have a different view of the skills that the students in our classroom will need when they go out into the workforce and live the rest of their lives after school. So the difference I think is represented by thinking about a statement by Albert Einstein that "*Education is not learning facts but instead is training the mind to think.*"

Sandra Rowan:

So there is a lot of information out there now about how students learn. The Department of Education has put out their policy "*Cognitive Load Theory*" and Dylan Wiliam says it's one of the most important things teachers need to know. Why do we need to know this? Because if we understand how the brain



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works, then we can understand how students learn. For example, *working memory* which all teachers will probably know because they've often seen students with Individual Learning Plans that say they have *low working memory* and what does that mean? *Working memory: students between the ages of 5 and 13 can only hold 5 pieces of information in their working memory.*

The implication for that is that if teachers are doing the *modelled instruction*, and giving kids 7 or 10 instructions of what to do, they won't be able to complete the task because they can't transfer that *working memory* into *long term memory* yet because they just in that phase. So *working memory* has been decreasing over time so now they're saying they can only hold 4 things in short term memory. So we've got to be very conscious of the capacity of the students in our classroom.

If we transfer to *long term memory*, that's a whole different thing. Once it's put into *long term memory* we've got to make sure that's it's been put in correctly. So this is where we have *guided practice* because if students are storing things in *long term memory* that are incorrect (and this is a great example from Maths where they might be doing a process that is incorrect and they are storing that in long term memory) every time they do that incorrectly, they have to do it 8x (times) correctly to change the synapsis in the brain. So *guided practice* is really important: we've got to make sure that we do *guided* with the kids (until they've got it correct) and then they go on to *independent*. That thing that "practice makes *permanent* not perfect". So whatever they're practising can be transferred to *long term memory* as a permanent thing. So if, for example, they've done a worksheet that has ten computations and it's all wrong, they would have to do it 80x (times) correctly to change that pathway. So '*modelled, guided and independent*' is alive and well.

Carly Boreland:

So, a lot of the things that we're talking about here they all need a little bit of qualification and explanation and understanding from teachers about why and what they're seeking to do and the purpose. So when we talk about '*modelled, guided and independent*' I think there's still some really important big things that teachers might be keeping in their mind: so we're going to demonstrate the work for students; give them worked examples to help them understand what they're doing; but importantly to keep in mind that we're still talking about big things and big ideas with high expectations of what students might be able to work towards. Something I think ,with all of this, is as soon as we start saying to teachers, -"kids can only remember 4 things only and they can only do this and we have to be very slow" I worry that shrinks us back down to teaching only the basics – as though the basics is all they can do. But that's not what we're talking about.

Jenny Williams:

We're trying to make sure that we teach very *explicitly* and systematically that's still considered very key elements of what a teaching program should look like. But, we're also making sure that we are offering, to students, the sophistication and full range of outcomes that the syllabus addresses. When I look at our NSW English Syllabus, I get excited about the way that this new syllabus document reflects our understanding (not just of 21st Century learners and their needs) but also reflects the changes we in understanding around *pedagogy* and particularly around *thinking*. When I'm saying this, I'm thinking of



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two key aspects of the NSW Syllabus documents. In all of our Syllabus documents there are *Learning Across The Curriculum* considerations and the *General Capabilities* have, as one of the items, - 'Critical and Creative Thinking'. And in each syllabus document, there is a small paragraph that unpacks for us what *Critical and Creative Thinking* might look like in that syllabus document; what it looks like in English; what it looks like Maths; and then in History etc. Where that icon appears, related to a piece of content in the Syllabus, then we can know, with confidence, that we are addressing that *General Capability*. As well as that, in the English Syllabus we have a particular objective which is 'Objective C – Thinking, Imaginatively, Creatively, Interpretively and Critically'. That 'Objective C' is placed there because of our increased understanding about the importance of being a *thinker* and of training our students to *think* and not just to do a worksheet, or do a task, but to be able to *critically, reflectively think*. Not just is 'Objective C' there, for that reason, but 'Objective E' - where we are *reflecting on our learning* - is also part of that new understanding we have about the critical role of *thinking* and our need to train students to be *thinkers* not just to learn content. As Sandra said with human knowledge doubling every 13 months there is no way we can teach 'the content' that is now part of our known world. But we can teach our students to be *critical and creative thinkers* and that will stand them, in good stead, throughout their whole life.

Carly Boreland:

Could I ask you then, if we go these students in our classroom *thinking*, what does look like practically? And what does it sound like in the classroom? And what are some of the things teachers could do in their daily practice that would make this part of their lessons each day?

Sandra Rowan:

I think we have to start every lesson with *talk*. And talk is incredibly important because "*language informs thought; and thought informs language*" so they're connected. And so all lessons should have a talking component in it: where students are engaging with each other; discussing the big concept; asking why; and thinking through talk. And their understanding of what's happening, you can hear in the classroom as a teacher, so you're able to, instantly, see where the misconceptions are and you can step in straight away before any other processes gone through. So *accountable talk* has a lot of stems that help students learn to discuss so they might have "I noticed that", "I'm wondering why you said that". So we're teaching them how to have routines in *talk* that allow the classroom discussion to go smoothly.

Carly Boreland:

And so you're saying that the discussion would happen before they then try and do some things on their own? So, discussing what they're going to do first so that you can try and avoid as many problems before they start.

Sandra Rowan:

So for example, you might say to them, "Now, turn and talk to your partner about what you're going to do when you get back to your table". So they've gone through the process. "So if we're doing a *sort*, I'm



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going to cut my *sort* and sort it into these categories”. That’s a process we’re talking about. Or, if you’ve read a book, and you’re doing a response to a book, they might turn and talk to their partner about whether they thought the character acted in a moral way or not.

Jenny Williams:

I think the using *talk to learn* is represented in our Syllabus very well in *speaking* and *listening* outcomes. But, I suspect that it’s not something that, as primary teachers, we’ve thought a lot about. I think we’ve thought a lot more in the past about using *talk to present*: tick the box news ; tick the box everybody’s contributed to the school assembly; maybe the odd oral presentation. But actually unpacking what our *speaking* and *listening* outcomes have to say about using *talk to learn* really can inform that classroom practice. We want students who can: discuss with a partner knee-to-knee; have a thinking partner and share that information; write their thoughts down on a whiteboard and show that to the teacher; rather than answering a question by just those couple of people who could put up their hand to talk.

Sandra Rowan:

Now that you’ve mentioned *questioning*! So, *questioning* is really important because we want to be asking *higher order questions* and questions that promote *critical thinking*. So, we don’t want a ‘yes’ or a ‘no’ answer! We want them to have time to wait before they answer (and they need 5 seconds) so that they can actually think of an answer. Sometimes in classrooms it’s question-answer-question-answer-question-answer and a lot of students aren’t even keeping up with that process. So, we want questions that enable them to *reflect on their learning* and to *develop a deep conceptual understanding* of what you’re talking about.

Jenny Williams:

I think the idea of *wait time* is really important. Because, as teachers, we want to create classrooms where students know that, if the teacher asks a question that, it will require thinking time rather than just wanting that fast response. So, giving students time to really think; to share their thinking with a friend (two heads are often better than one); and then come up with an even better answer than what they might have come up with on their own; I think is really important. And I like the fact that this is reflected in our Syllabus outcomes and we know that that *pedagogy* will create a *thinking classroom* where the quality of learning is raised.

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Carly Boreland:

Can I ask you both a question about *talk* because it can become a bit tricky to get the balance right? So, we're looking for novelty, we're looking for students to stay interested and sometimes, I think, the teacher can talk for a very long time. And, maybe, what we're saying here is the students are going to talk (about their thinking) and the teacher will ask questions (that prompt thinking) but we probably don't want to spend a long time explaining the 'why' or explaining all the instructions.

Jenny Williams:

I think one of the things you've mentioned there Carly is worth commenting on and that is "the teacher asks the questions". Our new Syllabus documents are really saying quite clearly that it should be students posing questions. And so, whereas teachers have typically felt that they were the ones in charge of question asking, we need to revise that process in our classrooms and have students posing problems, students posing questions and students engaged in conversation around that. There is a really good example for thinking about what *talk* in a classroom should look like. Rather than being a game of ping pong (between the teacher and a student and then back to the teacher and then to another student) conversation in a classroom should look a lot more like a game of basketball (where the teacher is the facilitator, perhaps providing momentum to the conversation). Students are learning the skills and strategies to be able to engage in rich conversation around rich topics themselves and have the skills to be able to do that.

Sandra Rowan:

And so we talked about *visible thinking routines* and that's from 'Project Zero' (Harvard University) you're able to access them online for free. One of their visible thinking routines is 'I see, I think, I wonder' and in that 'I wonder' part students come up with questions about the topic. So it's a great strategy to get students, who may not be used to asking questions, to start developing their questions about a specific thing: and that could be looking at a picture; it could be a big idea; it could be a character out of a book and the way they've acted. You can do it across any KLA: it's a great routine.

Carly Boreland:

So then if we want to build these qualities in the students like being able to talk and ask questions and understand that they're being valued and build in some of these routines as well. When's the time to start doing this? What time of year? What's involved in setting this up and the planning ahead?

Sandra Rowan:

I think the best time of year to set up this is at the beginning of the year. If we're trying to 'create a thinking classroom' we need to set this up Term 1, Week 1 and students need to know in the classroom what this is going to look like. And one of the strategies I've used, and a lot of people are using, is 'no hands up'. So in my classroom we're all expected to *think* and so if we are having a discussion, I teach them how to have a discussion like an adult. No adult, in the real world, puts their hands up. So what do they do? So you've got to teach that. You've got to wait for the break then you've got to say your



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point. You don't talk over the top of other people or yell over the top of other people. So we need to think about what does our classroom look like? What do we want? If we're going to encourage a *thinking classroom*, we start from the beginning of the year. Now that's one strategy: if there's '*no hands up*' it means that every single person has to think about the topic, or the question, or what we're discussing because, at any point, I might say, "*Carly, what's your thoughts about that?*". So, everybody in the room is working instead of just perhaps a few very enthusiastic ones who sometimes can take over more time than a lot of shy reluctant students.

Jenny Williams:

I think it's like anything that you want to happen in your classroom. You have to teach how the process, and the routines, that you want in place [work]. So starting at the beginning of the year and thinking '*What do I want my classroom community of learners to look like? What things do I want to have in place that are going to facilitate a thinking classroom throughout the year?*' So, some of the things that we've mentioned like open-ended tasks; like providing students with choice; like building their skills in having conversations; and unpacking some of *thinking routines*, that come from '*Project Zero*', are going to be significant ways in which you can create a *thinking classroom*. I think the other key element to this thinking is perhaps re-thinking our view of assessment. In each of our Syllabus documents we've got a great little graphic that looks at *Assessment For Learning*, *Assessment As Learning* and *Assessment Of Learning*. And that middle part of that three ways of thinking about assessment is particularly important. '*Assessment As Learning*' involves students in the learning process. We want students who are able to: monitor their own learning; unpack what it is they need to know; work towards their own learning goals; be able to provide assessment to their peers and feedback to their peers; and be able to take on board the feedback from their teacher to improve their learning and move further along the learning continuum. So, for us, as teachers in a classroom, re-thinking the way we look at assessment, particularly at *formative assessment*, and the ongoing way in which we're trying to value, and think about, and observe students actually in the thinking process. And the *thinking routines* from Harvard University '*Project Zero*' are certainly a great way to see thinking in action.

Sandra Rowan:

I think also at the beginning of the year, we have to think about setting up the learner to be a *self-regulated learner* so that they should be responsible for their learning, and they should be understanding where they need to go next, from that assessment. *Self-regulated learning* strategies have to be taught, we have to expect kids to be doing that. So the days of them going "*I haven't a pencil*" we have to stop this because they have to realise they haven't got a pencil and go and get one instead of putting up their hand and saying "*I haven't got a pencil*". So that's what I'm talking about, *self-regulating* - knowing "what to do? I have to have my equipment, I have to do the task or the thinking about or whatever we've talked about." Rather than that learnt helplessness that can happen, where the teacher takes all the power away from the kids, so they're too scared to do anything until they've got the very next instruction. So they don't have the freedom to have a go at things. So, we have to have a classroom where we want



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kids to be self-regulated because it's a life skill. So they have to be problem solvers, they have to know how to look after themselves; they have to participate actively in the learning and thinking.

Carly Boreland:

Sounds to me like this whole process could be really be a positive thing for teachers to attempt because it means that the students are doing a lot of work, a lot of thinking and then that will translate into some other things as well. Sounds like teachers would be saving time because they wouldn't necessarily be preparing a lot of worksheets etc. Is there a benefit to teachers, not only to students, but teachers as well?

Jenny Williams:

I think there definitely is! What we are wanting to have is a *thinking classroom* not just a *doing classroom* and that thinking process can be very powerful in exploring students' opinions, exploring student's knowledge, helping them to build upon that by through the conversations they're having about their thinking with other members of the class.

Sandra Rowan:

I think the days of learning being a worksheet is well and truly over. It's not that there's not times when you need a worksheet, written activities, table or something for them to fill in. But the days of text books and filling out the Maths textbook page that's pretty old fashioned and we need to move on. Because, back in the day when Jenny and I were at school, that was the type of activity we were doing. - filling in books on Social Studies etc. Well, that's just not appropriate anymore and that was at least fifty years ago.

Carly Boreland:

Well Sandra, Jenny, we started talking about the brain and how the brain works but where we kind of got to was that by sharing *thinking* with each other we become personally enriched as a result of the classrooms we're creating. So very nice chat and I'm so interested to find out how teachers go experimenting with these things and I hope people persist and see some benefits in their classrooms as well. Thank you so much.

Sandra Rowan & Jenny Williams:

Thanks Carly.

Carly Boreland:

You've been listening to the JPL podcast for the NSW Teachers Federation Centre for Professional Learning. I'm Carly Boreland, and I'm the Editor of the JPL. I've been talking with Sandra Rowan and Jenny Williams about '*Creating a Thinking Classroom*' in our schools from K-6 using all of the NSW Syllabuses. And to find out more and to listen to further podcasts you can visit our website at cpl.asn.au/podcasts



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CONCLUSION:

The JPL Podcast is produced by the Centre for Professional Learning and the New South Wales Teachers' Federation. All opinions expressed in this podcast are those of the individual speakers, and do not necessarily represent the views of their employer or associated organisations. The host was Carly Boreland; technical direction by Jason Nicholas.

Sandra Rowan was previously a Deputy Principal in an inner west Sydney school. She is an experienced K-6 classroom teacher and school leader. She has been a literacy consultant in western Sydney and a teacher mentor working with beginning teachers to develop best practice. She spent four years working in New York schools as a maths and literacy consultant. In New York she supported schools as they prepared for school reviews.

Sandra has published eight teacher resource books that provide explicit units of work across the key learning areas. She provides teacher professional learning at a school level as well as having presented at conferences on literacy and maths.

Jenny Williams has extensive teaching experience including secondary English and primary K-6. In addition she has worked as a support teacher learning difficulties. Her enthusiasm for early literacy and working with students whose literacy is at risk led her to train as a Reading Recovery teacher and subsequently work as a Reading Recovery tutor.

As an educational consultant she has worked in Western Sydney and New York supporting teachers as they developed their literacy practice, quality teaching pedagogy and mathematics instruction. She has supported whole school improvement in a number of schools in Australia and overseas, working with school executive teams and school staff to invigorate teaching practice leading to whole school change.

In recent years she has presented at several literacy conferences and co-authored literacy-teaching resources.