**Monica Bini:** What I wanted to draw attention to was, we do have some work samples on our website. We worked with some teachers...gosh, wasn’t this year, obviously – must have been last year or the year before – on some of the CCT work, and that’s been published. And here, some Grade 3-4 students annotated a simple argument that was given to them by the teacher. And the argument was jumbled up. So, often, when you learn about the structure of arguments, you learn that the...you know, the conclusion might come first, followed by all the reasons to back my conclusion up, or you might be taught the opposite. I’ve got all these reasons. “Did you know that if you volunteer, you can make friends? Did you also know...?” And then you finally end up with a conclusion. “And therefore it must be really good for you.” So, either way around, you’re often taught like that. But, as I said, real writing is often jumbled. One thing you can do, this teacher chose to just give students strips of paper and they were jumbled up and the students had to put them in order and label them on the work.

So, I think Alicia’s putting the link now in the chat box for you, if you wanted to go and see some other work samples. And those work samples come with assessment rubrics, as well, for formative assessment that were drafted by the teachers. And there was some quality assurance from University of Melbourne formative assessment experts to help refine those rubrics, so that you can go and have a look at a couple of other examples if you wish.

But that’s an example where you are asking a student to label...use their labelling to come up with a structure. The task instructions for that were to match a reasoning error... Oh, whoops. Sorry. This is a new formative assessment task – there was another task for older students where students were given a text with some reasoning errors in it. They were also given a list of errors, and they were asked to match up the errors...the kind of error with the example in the text, the opinion piece. And what they had to do was label the main argument that was being made – could they find that in the stimulus? Then they had to also label the reasons presented to support the argument, and they had to label any reasoning errors and justify why that was an error – like, what’s the problem with that?

And here is a response. So, one of the reasoning errors the student was taught was an appeal to an irrelevant authority. And we saw this in The Age newspaper recently, where they asked a reconstructive surgeon – did anyone see that? Gave an opinion piece about epidemiology, which I would argue is possibly an irrelevant authority – they’re not quite an epidemiologist, and here they are writing their opinion piece in the paper because they’re a surgeon. So, anyway, the student...that student, who...they’d come across that in The Age has been taught that why appeal to an irrelevant authority is a problem. And so, it’s demonstrated in the paragraph. If you go to the website, you’ll see the original opinion piece. You’ll, see obviously, the full piece of work. But in this case, the justification, I thought would be of the most interest to you, and you can see how the student has justified it there. And the topic was the banning of plastic bags. And we quoted... I think we seem to think surgeons are... (LAUGHS) ..authorities for all kinds of things in our community, including plastic bags. So, the student identified that this was an irrelevant authority and you would be erroneous to think that that was strong...you know, strong reasoning there.

So, in terms of metacognition, this is the final strain in the curriculum. Do I have breadth and depth of understanding of metacognitive strategies? So, the curriculum looks at a whole range of metacognitive strategies, and it goes into some depth, if you will, around certain kinds of strategies. Then, can... So, “Do I know what they are?” is the thing you want to be looking for evidence of in assessment, and be teaching, of course, the strategies. And, “Can I select strategies to manage and reflect on my own – or mine – and others’ thinking?” That’s really what the curriculum attempts to do across the levels – to gradually build capacity to do that. So, you’re looking for evidence about their understanding of what strategies are and whether they can control the use of the strategies. In other words, “Can I select them to manage thinking?” and then, “Can I reflect on those...reflect on my thinking and how I use them?”

So, in terms of assessment methods in general, one assessment method is just to reflect on how metacognitive strategy or tool is used, and these...you know, how did it assist your thinking? did it assist it...? And maybe it doesn’t always have to assist it really well. Some of the reflection might be that, “This wasn’t the best tool and I should have used another one, and here are my reasons about that.”

So it’s part of a learning culture as well, around working with the students, that difficulties – in particular, challenges – are really useful in a Critical and Creative Thinking classroom, and should be welcomed, because we can learn from our difficulties and our mistakes, and they’re often great opportunities for reflection.

Can they identify their own examples of where metacognitive strategies might be useful beyond the ones that you’re giving them? That’s another way to get evidence, understand what the strategies are and how they used. And, yeah, my advice there is to assess through practical contexts. Don’t make it, obviously... The curriculum, all the capabilities are quite abstract, but they come alive through learning areas. And don’t be fooled just by the abstract nature of them. You want to bring them alive through actual practical examples and practical things, like the banning of plastic bags we looked at before, or the, you know, getting rid of school uniforms, that kind of thing.

So, assess through practical context, but make sure the level of challenge is high enough to get buy-in from the students, that they’re going to, that they require metacognition, that they have to use... Some students will obediently use a strategy because you’ve asked them to – they’re compliant, but they don’t really believe in it, because it’s just not difficult enough. Some of the content here is around learning strategies. So you don’t really need a learning strategy unless something is difficult. You can just do something in your head, otherwise – you don’t really need a learning strategy. So, if a kid can do it in their head, they might obediently write out a learning strategy for a maths problem, but they won’t really believe in it as a strategy. It’s only when they’re in trouble that they need to draw on a strategy to do it. And it came...a maths teacher actually reflected on that with me last year, where they said, “My Level 4 students in my Year 8 class, my maths class, are better at articulating and justifying their learning strategies than my best kids.” And I said, “Well...” Because he thought it would be the other way around. And we worked out together that, really, the better kids don’t need to use those learning strategies – you’re making it too easy for them. You need to challenge them more and then they’ll, you know... If you’re really struggling in a maths classroom, you’re going to grab onto anything you can to survive, and that will be those learning strategies. So those students are, of course, better able to articulate them. And he did reflect that they were moving a lot faster along in their maths because they were able to...the learning strategies, explicitly teaching those, was useful for them.

So, Melissa, I will pass the ball to you. You’re going to look at some examples of how Melissa did this actually in a maths classroom. So I’m just going to hand that over to you.

**Melissa Pavey:** I think I can’t reiterate enough how important it is that the kids are being challenged. It’s actually, as Monica just said, if they’re not being challenged, they’re just practising what they already know. And in that case, we’re not going to see any evidence of metacognition from them. So, I taught my kids to write reflections in their maths books. Not every day, but sometimes. And they’ll annotate their maths books with some information for me. I did teach them some stems – so, things like “I learnt,” “I prefer,” “I was practising.” If it’s not difficult for them, they can recognise that they were just practising something they already know. And they always need to give me a reason. Why did you prefer that method? How do you know you learnt that today?

So, I have an example here. One of my favourite things to teach at 5-6 is multiplication, because there are different strategies to work out multiplication problems. And you can see on the left is an example of the three strategies that we looked at, and then on the right we’ve got the child’s reflection about those strategies. And the reflection is all about which multiplication strategy they prefer to use and why. She said things like, “I prefer the lattice method because it’s the most effective and efficient for me. It’s organised, I can see it clearly.” She also thought that it would work if she was multiplying decimals, and that was something she then went off to investigate further.

The discussion that we then had – I talked to her about that – was around her thinking, not around the maths itself. She was learning the maths fine – I didn’t need to worry about that – but it was around her thinking and her justification for why she preferred a certain method over the others. You can see that I’ve also got my notes on there in blue, and some little symbols there.

We use... Or I should say I, not everybody. But I use the SOLO taxonomy to look at success criteria for kids and to write tiered success criteria. This has come from Biggs and Collis, but the real guru that I go to for this is Pam Hook and her work. I use it to write tiered success criteria, but I also use this kind of language with the kids, and they know that what they are trying to do is to, first of all, work out where their understanding is around a topic, and then where they’re going to move to. Perfectly fine if they are at a multi-structural level. To move on to relational, they need to know that they might have to compare and contrast. So things like a Venn diagram – if they can apply a Venn diagram to the topic, then they’re moving into that relational level. It’s just a nice, neat way for the kids to focus on their thinking and their learning alongside the curriculum content. And it’s quite effective. The kids learn it pretty quickly.

OK. I think the main thing that I got out of all the work that I’ve done with Critical and Creative Thinking is that creating a culture of thinking and developing shared language is really, really important. The kids need to be immersed in a classroom culture where talking about their thinking is the norm, and they know that I value their thinking, and that includes their mistakes. They need to know that their ideas are welcome to me as well. And I want them to be part of a classroom where, when they start talking about their thinking, that everybody understands what they’re talking about. So shared language is really important.

And that takes some planning, so I do explicitly plan and explicitly teach the language around thinking. We use words like ‘metacognition’ and we use words like ‘reasoning’, because the kids need to know those words. And I would even do that with young kids. I have 5-6’s, but I don’t see any reason why I wouldn’t use that language with Preps.

We plan for creating the culture, so a plan for a level of challenge where the kids have to apply strategies, where they have to use tools to support their thinking. And I plan to assess it as well. So, always looking for some formative assessment opportunities for the kids, such as the ones that you’ve seen today. Those things like annotating their maths books, that sometimes spills over into other areas. I had a student who annotated her maths test for me one day... (LAUGHS) ...and gave me feedback on which questions were the most difficult and why.

And I think it’s important too that the kids know that we’re following that up. We measure what we value, and if the kids know that we’re assessing their growth in metacognition, then they know that we value that. They know that we do maths tests, and they know that we’re looking at how their thinking is developing too.

We also use prompts like, “What makes you say that?” throughout the school. We have a whole-school plan that involves introducing different thinking tools to kids at different times, but it’s become a habit for all of us to just ask the kids, “What makes you say that?” So, even that in itself is starting to build a culture of thinking in the school. Kids don’t need to hear it very often before they just start to justify their thinking without being asked. So, often I’ll ask a student a question and they’ll answer, and their answer will include the word, ‘because’. I don’t need to ask them anymore, “What makes you say that?” because they just know that we’re looking for a justification.

And we’re finding too that we’re starting to do it with each other. The staff are starting to do it in staff meetings. We just justify our answer straightaway.

OK. There is a real link between teaching and assessment, and, as I said, formative assessment is really important and relies on the shared language. The concepts underlying this shared language need to be explicitly taught. And, as I said, and Monica has already pointed out, the level of challenge is really important. It’s OK for kids to be practising sometimes, but we also need them being challenged more often. And that really needs to come through in curriculum content too. I think Monica’s already covered the point that I was going to make here, about which thinking tools are you going to apply if the content is easy. And I know often in math tests we would ask the kids to show their working out, and often they would say, “Well, I just know.” And that’s because the content had become automatic for them. So they didn’t know how they worked it out, because it had become automatic and it was too easy. The question was just too simple. Easy tasks are OK when you want the kids to practise, but they don’t promote thinking.

Alright, I’ll hand back to you, Monica. I really like this diagram, and I know that you do too, so... (CHUCKLES)

**Monica Bini:** No worries. Yeah, it’s... And, obviously, with other learning areas, it’s the same idea. So, I think we have to be careful here with student choice and student agency to make sure that students are challenging themselves, they’re not... If their choice is pretty open and they go to something that they’re already really good at, that might be OK in some circumstances, but for the purposes of further developing their critical and creative thinking, it may not always be... Well, you might begin with that, but help to sort of work out how they might be challenged even more. So if they want to do a particular style of, I don’t know, manga drawing, you know, so they’re...and they’re really good at that, and “That’s my choice,” how can we actually challenge ourselves to just go a little bit further? Or what’s the kind of thing you can draw that you may not have drawn before that’s in... You know, setting up some sort of challenge where, then, they have to then go and try and apply some strategies and tools that they were taught. And making it guaranteed and viable for every student.

So, I worked with a science teacher recently who began by saying, “Well, I set up a science class and they’ll work on a STEM problem, and the critical and creative thinking will just be developed as they do their STEM problem.” And I said, “Well, will every student have a chance to develop further, or is it kind of just going to be contingent on having some kind of difficulty as you construct your engineering problem?” He was working on...actually, it was an engineering-type problem, solving a...like, a managing a developing country issue, they were solving a problem there. So, using concepts learnt in physics, if you like. And so, then we worked out, OK, how would every student be given the opportunity to develop their critical and creative thinking, not just students who happened to run into some difficulties, and making it contingent on that? Because that’s actually really hard to assess as well. And you may not even catch them having the difficulty. They may not even tell you. There they are working in their small group. So, that kind of language, the shared language, the expectations, the culture, and then different points of evidence, different opportunity – you know, you’re collecting more than one piece of evidence – are going to help you.

And you can see here in this diagram, there are two things, effectively, that we’ve talked about – shared language and challenge – that support assessment, because... And then you need to plan for both of those, obviously. And underpinning a shared language are some concepts – some CCT, but also learning area concepts too, because you’re not going to have this...suddenly this incredibly abstract conversation with a student, you’re going to be talking about learning strategies and multiplication, or whatever it is.

And then, of course, with the challenge, thinking about... What you’re planning for there is really, what are the next steps in their learning? For those students that’s going to... What’s the right level of challenge for them? And that’s our craft as a teacher, is to that zone of proximal development that we all learn about when we’re in pre-service teaching.

So, that’s pretty much it. I’m just keeping an eye on the time. We wanted to leave some room for questions. So, are there any questions? I’ve been monitoring the Q&A, and you’ve been too kind to us – there aren’t any... (LAUGHS) ...in the unanswered box at the moment. So go ahead and ask your questions, if you have any. There must be some. And in the meantime, I will put on... There’s my contact details, if you want to get in touch about anything to do with the Critical and Creative Thinking curriculum. Or if you...you know, you go on our website and you’re looking for resources and you’re wanting to...

We are about... I’m actually developing a resource at the moment that’s going to go into our publications unit, unpacking the reasoning content descriptions, because they’re the ones a lot of teachers struggle with. So, I’ve done the F-6 one. It’s on its way towards being published. And we’re just in the final drafts of the 7-10 one. So, that’ll unpack what you might teach to students. It’s not the only thing. They’re just suggestions, but it will unpack it all for you, if you need to, and plus give some sample learning activities. So, that’s on its way. So keep monitoring the website as we... It’s only me doing all the four capabilities, plus a couple of VCE studies. So...

**Melissa Pavey:** I think the reasoning examples would be great, Monica, because I know that was something that I found difficult.

**Monica Bini:** Yep.

**Melissa Pavey:** Yeah.

**Monica Bini:** It is technical in one sense. I don’t want that to sound scary, though. You would need to go away and find out what’s the difference between a valid and sound argument. That’s what I mean. But, in this resource, it will tell you what the differences is. You don’t have to go away and find it out. (CHUCKLES) You’re welcome to, of course, but we’ve done all that work for you. And I’m working with someone from Melbourne Uni as a critical friend on that, too, just as a crosscheck for me. So it’s a good resource. It’s coming along well. Hopefully... I’ve done unpacking ones for ethical capability as well, and also for intercultural, and they’re really probably the most popular resource. They’re really answering the question, what on earth am I supposed to explicitly teach the students for this content? How do we unpack it?

**Melissa Pavey:** I thought your example before, Monica, when you talked about applying reasoning errors to create comedic text... I thought that was a good one, because I had a student who actually found an example of that in a Dog Man book.

**Monica Bini:** Oh, really?

**Melissa Pavey:** (LAUGHS) Yeah. I can’t remember the exact example, but when we looked at it that way to create comedy, the kids found that relatable.

**Monica Bini:** Yeah, yep, yep. And I got that idea when I was teaching myself. A few years ago, I did teach Critical Thinking. It was called Critical Thinking then, not Critical and Creative. And did for a few years under the radar. Don’t tell, because it wasn’t in the CSF or anything. I mean, this is pre-VELS. And then, of course, it landed in VELS – after that, we did it in VELS. But, the... Yeah, as part of that, I kind of worked out that giving them something with an error in it is a simple way to do it.

So, we’ve got a question from Joanna, and also Caitlin. I’ve asked Alicia to hopefully put in the chat box where you can get a link to the resources. There’s general resources on teaching capabilities in...you know, for all of them. What we talk about, we have to be explicitly taught, practised, consolidated, applied to learning area. How it has a built-in assessment in there, too. So, hopefully, she will send that to you. Then I’m going to verbally answer Joanna. So... Whoops. The question disappeared. (LAUGHS) Because I right-click on it and I say what I’ve done to it, and then I...

**Melissa Pavey:** (CHUCKLES) I’ve got it here.

**Monica Bini:** I didn’t realise it was going to disappear. Sorry, Joanna. I think the question was around, do we have it as a criterion in the rubric?

**Melissa Pavey:** Yep.

**Monica Bini:** It’s up to you. I’ve seen examples of schools that add it as a criterion to the learning area rubric. So you could have in... I can see... Melissa, did you want to chip in there?

**Melissa Pavey:** Yeah. I do it regularly. I think it shows the kids where my emphasis is. That it’s not just on, say...if it’s in English, it’s not just on the text response, but it’s on their thinking about the text. And that I want to see their thinking. So I often do. Yep.

**Monica Bini:** Yep. Or you can keep it separately. It’s up to you. Just in your own mind and in the student’s mind have... Because, in terms of achievement standards, just be clear what’s relevant to the Critical and Creative Thinking achievement standard and what’s relevant to the learning area achievement standard. And, of course, really, Critical and Creative Thinking is covered by the learning areas and the capability. I mean, that’s what learning areas are. They teach you... You know, history is fantastic at teaching you about cause and effect, and consequences of actions, and so on. So they all make a contribution. So just make a...just you as a teacher be able to track that clearly in your own head, and don’t muddle them up too much. It’ll make it harder in terms of reporting and so on. Yeah. I wouldn’t die in a ditch about it in that sense, but at least just have it clear in your own mind what the, you know... And look for the value adds from critical thinking.

OK, so, Alicia’s... I’ll send... I’m going to put in the... Alicia, if I put in the chat box where the link is to the resources, will that work? I think it will.

**Alicia Farrell:** That would be perfect, yes, if you can do that.

**Monica Bini:** OK. I’m just going to whip that up now. I hang on mo, I’ve always got pages open somehow. OK, yep, I’ve got it. Lt me just... Give me a second, everyone, and this will go into the recording, so that’s useful too. Hang in there just for a minute.

So, basically, what you do is you go to the VCAA website, not the curriculum website. And from there you go to F-10, and then from there you’ll see ‘curriculum area resources’ tab, and ‘help me find a curriculum area’ resource, which is what you do. And then all of the learning area resources are there, including capabilities. And that’s the link I might give you, because if you’re having trouble finding those resources, you probably want to find English and maths and other resources, too. And they’re all... So, I’ll give you that page so you can find any resource that’s published by us. And here we go, I’m sending that to everyone. So that’s where you would begin, and then you click on Critical and Creative Thinking, and that’s obviously where we’ll put our reasoning resource when that comes along as well, as we gradually develop more and more of them. But that’s... So the trick is not to go to the website itself where the curriculum is, but to go to the VCAA website. The reason is just the size of the sites. They’re not, you know...they’re just big. So we needed to keep them separate. Alright.

**Melissa Pavey:** You could bookmark. When I find something good on the VCAA website that I’ve been looking for, I bookmark it, so I know where to find it again. (CHUCKLES)

**Monica Bini:** Yep. And... Yeah. And they’re being...as I said, they’re gradually to added over time. So, we do do updates, through... You can subscribe to curriculum F-10 updates, but they don’t come out every week. So, they come out from time to time. And we’ll... So you can update through there, and also the bulletin as well.

And if you have suggestions for resources, by all means contact me as well with those suggestions. We’re trying to anticipate what teacher needs are. So, by all means, please send in your suggestions. We sometimes get those through questions like you’ve sent in today, or comments in workshops, or feedback on surveys. Alicia, is there a survey today?

**Alicia Farrell:** Yes, there is. Yeah. At the end.

**Monica Bini:** Beaut. So we really look at those seriously to help us plan the next webinars, to see what went well and what would be even better if, and you could pop in ideas there or just contact me on the contact details.

So I think we’re done. We’ve gone up to time. Beaut. So I hope you got something... We hope – Melissa too – you got something out of the webinar today, and thanks so much for coming along. And I hope to see you around the traps in other webinars and other PDs and PLs.

And if you wish to chat more, sometimes I go out and visit a school even, to come and talk to. I’ve talked to whole staff at school to help them with the particular capabilities, things they’re trying to attempt to do, planning and so on. Then just ask about those.

So, great. Alright. We’ll leave it there, I think, Alicia and Melissa.

**Melissa Pavey:** Yep, perfect. Thanks, everyone.

**Monica Bini:** Alright. Best wishes, everyone, for the rest of the term. And we will see you soon. Alright, bye, everyone.

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