

Andrea: Our next set of questions, I've got onto the different heading of differentiating. Lots of people are talking about working with classes where students are operating at different levels of understanding. Our first question comes from, Alistair Wallace. Alistair asks, he's linking particularly to the calls, Dylan, when you've referenced student hinge-point questions and students have indicated, using finger voting, their responses. Alistair's question is, "Where does the teacher go from here in the likely scenario that a significant minority are struggling, where the majority ready to move on. If the others move on whilst the minority practice more, they ultimately end up even further behind." Dylan, what are your thoughts on that scenario?

Dylan: Well, the first thing to decide is, how important is it that everybody gets it now? You have to make a decision about the content. Is this a key concept that everybody needs to get? Is it something that you can actually address later on? If you've got a class of 30, and 10 don't get it, then I think I'd probably actually want to explore it a bit further. If it's three that don't get it, I'd probably try to park it and deal with those three children later on, at the end of the lesson, by going over it in more detail.

As I said, for me the most important thing is whether this is really important. I used to teach science, I used to teach phases of the moon. I used to have this great way of teaching it with torches and tennis balls, it was great fun. You know what? If students don't get it, nothing bad happens. There's nothing else in the curriculum that depends on them getting this. If you're talking about particulate nature of matter, it's really important that every student understands this.

Whether you go back for every last straggler or not, also depends on the content. In primary school mathematics, place value is pretty important. Roman numerals, not quite so important. You have to make a decision about that. The other thing to think about is, you may have high achieving students getting it right, but how secure is their understanding? One of the things you could do is, depending on where the students who are getting it wrong are seated, you might say to people, "Talk to a neighbor."

This is the technique that Eric Mazur at Harvard uses. You might actually just talk about your answer to your neighbor, see, and then vote again, and see whether that's actually decreased or increased the confusion. It was a floating, sinking question, this was with science teachers, and they asked them what happened. The first time I got them to vote, 50% got it wrong. I then asked them to discuss with a neighbor, and we voted again, and 75% got it wrong. It was actually quite a simple question.

The discussion had actually confused them more rather than clarifying. The important point we were able to resurface the issues, and again by voting and voting and voting, after about 30 minutes, we actually were clear that everybody got it and were ready to move on. Just the fact that students are giving the right answer doesn't mean they have a profound understanding. Even if they have a profound understanding, they will actually have an even more profound understanding if they explain it to somebody else.

It's about using the information you have, about who gets it and who doesn't, to make the next steps in what you're doing as a teacher more effective. That might mean moving on, that might mean just giving them an extension task, to some students, you sitting down with the lower achievers, or it could be something different. The important point is, you have to make a professional judgment about what are the learning needs of the whole group, so what is the best way of meeting those. You will always have diversity of achievement in the class. The question is, can you find a way using that diversity as a resource to improve what's happening?

Andrea: Lovely, thank you Dylan. Chris, anything you'd like to add?

Chris: No, I'd agree with that.

Andrea: Thank you. Dylan, I wish you'd spoken to my year five teacher about the importance of Roman numerals. I had to write them out to 1000. I remember it very well. Okay, thank you Alistair for that question. Thank you, Dylan, for those responses. Right, Chris, I've got two people here, I think, actually, there might have been more who asked a similar question. This is Rabia Memon, and Shafaq Fraoq, and they're asking, "How do you cater for slower learners in a class using formative assessment?" One thing that they've asked is, "Would it be okay to plan a separate assessment? Will that not be unfair with the others?" Could you please help them with these questions?

Chris: I think it depends, really, on what you're doing the assessment for. If you're doing the assessment to help that student improve, then you can... You wouldn't want to do this, because it would take time, you can have every student do it differently. It's really tailoring your assessment to find out what you need in order to help that student move forward. I think this fair and unfairness bit, sometimes we get a bit caught up on. You ask what's the most appropriate for the students concerned. You just want to get evidence without testing everybody on the same question every time.

Certainly, I think, you can really relax a bit and ask the questions you think. Maybe, frame the question a different way. I've seen teachers who sometimes break questions down when students are struggling, so that they actually help them to access the bits that they may be able to do, and possibly then give them the opportunity to try and put all of the bits together to make a full answer. I think you deal with differentiation in a class, as we do with any class, in that you set activities that allow for students to really progress and access in, and also be able to attain across a wide range, as wide as a range as you actually can.

If we're taking science, for example, let's say you're looking at understanding a balanced diet. It might be that for some students, you ask them to, maybe, design... Ask all of them to design a food that's going to be suitable to take on a school trip, that is balanced and practical and pragmatic. The assessment comes when you actually ask them to describe what choices they've made and why they've made them. The reasons they give for why that would be, say, balanced in terms of what else the student was probably eating that day, or what was there in terms of different food groups, et cetera, and so on.

It's really the way that you actually go about it, and what you're actually looking for. You can set the parameters for the assessment by the types of answers that you will be expecting, say, from a high attainer than from a low attainer. You'd have different expectations, I think, across the range. I think that's really the way to go about it, it's more designing the opportunity for students to show what they can do, whether it's they can do a little or they can do a lot, rather than worry too much about necessarily trying to do things differently.

I think, too often, particularly in classrooms where they concentrate on differentiation, teachers feel they've got to do different things with different children all of the time. Quite often that's not necessary. Sometimes it's doing the same task but expecting different outcomes. All these outcomes will be valid, it's just that some will allow students more opportunity to show what they can do than others, but they can all show at least something as we're doing that particular task.

Andrea: Okay, thank you Chris. Dylan, I'm going to lead you on to the next question, because I think your answers will also support Rabia and Shafaq. The next question is very similar, but it's related to mathematics. The next question is from Nida Shahid and Nida asks, "I want you to discuss any topic related to maths, and how to handle children of different IQs in the same class." I think that's where it links to what Chris's... Student's operating at different levels. Then, there's a follow-up question there, Dylan, which is how to assess an unwilling child. Do you want to start with the first one, because it links to what Chris has just been talking about?

Dylan: I think Nida makes an important point, which is that the range of achievement is much greater than people normally assume. In England we often talked about a seven year gap. In fact,

the gap is more like 10 years in a typical class. Even when you have a grader system, as you do in France and Germany. Students are meant to be kept back if they're not ready for the next grade. Even then, you get a huge range of achievement. Teachers are always struggling with this.

The question is, what would make an unfair assessment? In my view, there's no such thing as a fair assessment, because fairness is not a property of assessments. For me, an assessment just assesses what an assessment assesses. The fairness or the unfairness comes in when we conclude that a particular response by the student has a particular meaning. Sometimes we give students an assessment, and we don't get very much evidence. Does that mean that they didn't understand the task? Does that mean it was too hard for them? Does that mean it was too easy for them, and they thought it was so boring, they didn't actually try very hard?

The crucial thing is moving away from the assessment towards the evidence it gives us, and the meanings that we can attach to that evidence. That is what psychometricians call, "Validity". Validity is not a property of assessments, it's a property of the conclusions that we draw. The important thing is, what evidence are you getting, and whether you can interpret that in appropriate ways.

Sometimes, we do want to ask very, very specific things. Sometimes there's a very specific skill, and that might be relevant for only a small number of students in the class. Sometimes, there are questions we could ask where we get relatively useful information from everybody.

Getting that balance right is saying sometimes, "I need to know whether you can balance chemical equations, and I'm going to give you a question on balancing chemical equations. I need to know this, and I might try to differentiate by having some examples which are much more challenging than others." Sometimes need very specific things. Sometimes you can ask much more broadly focused questions where students can actually respond in a variety of ways. The difficulty then is, if you ask an open ended question, and you don't get the kind of responses you were hoping for, does that mean the students couldn't respond in that way, or they just chose not to?

I think that's the difficulty that every teacher is grappling with all the time. If I get the evidence, what does that mean? If I don't get the evidence, what does that mean? Sometimes you need to make the question easier or more structured. Sometimes you need to make the question harder. It's very, very difficult to provide any kind of general conclusions, yeah.

Andrea: Lovely. Thank you both very much. I think there was lots of stage advice there and strategies, and ideas. Moving on to our next question then, Chris. This question comes from Shama Bokhari and Shama asks, "How to assess a child with low attention span? They're good at observing, but they lack interest, and concentration is a hindrance."

Chris: Little and often I think then. It depends, really, what you mean by "assess". We're talking about how do you keep an eye on how they're doing so that you can plan in things to make sure they are following the work as well as other students. I tend to ask them questions regularly, like "What's in it?", "What's different about this and this?" When they're working on something.

If they are good observers, then they should be able to tell you what's similar and what's different. It's quite interesting that if you ask that, they'll probably tell you what's different, and then you can come back and say, "Yeah, and I want to know what's similar as well." That, we focus them in to actually doing that for you. You can get quite a lot of that, so you know, "What's similar and what's different about animal and plant cells?" "What's similar and what's different about force and energy?" "What's similar and what's different about bulbs and resistors?" Whatever it is that you're actually doing.

You can maybe just use that as a way in for dealing with that child for a while. Really, it sounds to me as though you might need to do some work on developing the learning behaviors of this student so that... They are a good observer, so maybe they can use those skills within a group to help others, and others can help them to, maybe, articulate answers, or build up answers. It might be more than just the assessment with this child that you need to work on.

Andrea: Lovely, thank you Chris. Dylan, anything you'd like to add?

Dylan: Yes, I think there's an interesting perspective on this issue from the work of an American Hungarian psychologist named Csikszent Mihalyi, which is spelled C-S-I-K-S-Z-E-N-T M-I-H-A-L-Y-I, if you want to look it up. We tend to look at students' low performance or lack of interest as being caused by a lack of motivation in the child. We actually blame the victim. We say, "This child is not motivated, or they're not interested."

What Csikszent Mihalyi points out, is that when tasks are just at the right level of challenge, people get interested. If it's too hard, they get worried or anxious. If it's too easy, they get bored. What he does, is suggest that we need to get the match between the challenge and the capability just right. If the child doesn't show any interest, maybe it's too easy, maybe it's too hard. The important point is, "Let's not locate the problem in the child, let's look at the problem as being an interaction between that child's current capabilities, and the task that's currently in front of them, and to think about ways in which we can actually, either, make the task more challenging, or less challenging, to suit that child's current capabilities."

I think that idea of the Csikszent Mihalyi course flow, that match between challenge and capability. I think it's a very useful perspective on thinking about poor attention span. I don't know very many children who have poor attention spans with things that they like to do. We often say, "This child has no concentration or can't concentrate for more than five minutes." I bet you that that child can concentrate for a long time on things that they're passionate about. Often they key is finding out what it is that they're passionate about. Sometimes just creating a pretext where they can actually get interested in this from a different angle, just to get that child working.

I actually think this is one of the things that distinguishes the most effective teachers from others. Good teachers can make children interested in, and care about things they didn't care about when they walked into the classroom. It's the way of presenting things, it's what researchers in this area call, "Situational interest." Some kids are interested in science because they like science. Good teachers can create what's called, "Situational interest", they're not particularly interested in science, but the way the teacher presented this question intrigued them or peaked their interest. That, I think, is entirely consistent with this idea of "flow". It's about finding a way of presenting this to students in a way that actually is intriguing or is within their current capabilities.

Andrea: Lovely, thank you very much. Thank you, Dylan, for that. Thank you, Chris, too. Okay, thank you everybody for those questions linked to differentiation. The other thing I was going to mention, as well as this Assessment for Learning online MOOC that Chris and Dylan work on, they also work for the National STEM Learning Center on a course Differentiating for Learning. The recent run of that has just finished, however if you went to FutureLearn and typed in either "DFL" or "Differentiating for learning", you'll be able to get the page where you can register your interest for the next run.

I'm sure that you'll find more ideas that build on what Chris and Dylan have been talking about there. Thank you for those questions. Moving on to our next question, Chris, I'm going to ask you this one. This comes from Patric Fawcett, and this is looking at self and peer-assessment. Patric has asked, he would like some suggestions on getting students to assess themselves. He finds that only a few students can do it. Any thoughts or advice for Patric, Chris.

Chris: Yeah, when we started out, nearly 20 years ago now, working on assessment for learning, many of our teachers were very keen to do self-assessment with their students early on. What they found was, when they started to try and do it, that just as Patrick found, many of the students couldn't do it. On the video, which you can look at on YouTube, on the KMOFAP Project, John, one of the teachers, said, "I thought I'd try that, and it didn't work", and that he thinks it's much more complicated than that.

It is, because what students need to be able to do, is to look at what they're doing now, think about

what's needed for the future, and think about how they might close that gap. That's difficult to do at first. They need to have models to help them move through that, we found two things that really have helped in classrooms. One is that when teachers give comment-only feedback, the teachers that get that working well and get the message over to students about both the quality of the work that they've produced, but also, those next steps. Then encourage and support students in taking those next steps.

Those students go on to be better at self-assessment, because they start to realize how looking for those key bits that you need to change or need to develop, that's the thing that you need to focus on to move you forward. Equally, those classes who, first of all, develop better peer-assessment skills, so that learners come to realize that when they look at one another's work, they can make judgements and then express those judgements, and then the student who's receiving that information can take that to help move their ideas forward. Again, that actually helps for those self-assessment skills as well.

It's quite interesting, through peer-assessment, when you look at somebody else's work, you sometimes see, in their work, mistakes or maybe developments that you could make in your own work, that you've not realized until you saw it done a different way. It's both through peer-assessment, it's both giving students a range of different ways of showing quality that they could learn from, and range of different ways of making mistakes that you can learn from, that helps develops those self-assessment skills better.

It just takes time. Asking students to do full scale self-assessments on a large piece of work, after they've done it, is not a good idea. Getting them to, maybe, let's say they're doing a report in science, writing up an experiment they've done, maybe get them to look at one another's methods after they've written and think about, "Have I been systematic? have I included the steps? Could somebody else repeat this? Have I included, within it, the details of the types of instruments I've used and precisions they've got.

They can then improve on that there and then, so they realize there is a value in looking at something again and having another go at it. Then, maybe, next time around, or a few times after that, it can actually do more. Maybe then give feedback on, say, a whole one. It feels like you've got to get in the feedback while you're doing it, if it's peer-assessment. Then, maybe, you start to self-regulate a bit better when you start to do it for yourself. It is hard, it takes time, but once students have seen the value in it, it's something that they'll start to do in most pieces of work, both in science and other subjects.

Andrea: Okay, thank you Chris. Thank you Patric, I hope you found that encouraging, about that perseverance and also some ideas that are useful. Dylan, I know that you probably have things to say, but I'm going to ask you link it to the next question I was going to pick, which was van AardtTessa's question, or Tessa van Aardt, apologies if I got that the wrong way around.

They teach year two, and they have a problem when it comes to self-assessment, whether students are inclined to tick what they think the teacher wants to see on what they're friends are doing, so they would like ideas on this, too. Again, it's thinking about getting our students to assess themselves well, so I thought you could answer that one, because it will link to what Chris has just talked about, and cover this question too.

Dylan: I think the thing to remember about self-assessment, is that it's meta-cognitively challenging, and emotionally challenging. We're asking students to think about their own thinking, but we're also asking them to think about their thinking in a context that actually is emotionally quite difficult for many students. We find that teachers rush to self-assessment. We think the correct stepping stones are, start with peer-assessment, and don't start with peers in the classroom. Start with anonymous peers. I think the best way is to start with asking students to assess the work of anonymous peers, and maybe to ask to make suggestions. Then to assess real peers, then, and only then, having students assess their own work.

I think that in terms of the peer-assessment stage, the thing to remember is what we already know about effective cooperative learning, which is there has to be group goals and individual accountability. One of the things we have to build in to any effective peer-assessment, is some stakes for the person who's giving help. Too often, teachers don't make students accountable for the quality of help they give to their peers. One way to do this, and this is a technique called, "Two stars and a wish", which is well known. Students are told to say two nice things about a piece of work and one wish. There's no incentive, if it's done that way, for the student to take the work seriously.

I saw one teacher do this very nicely. She did the two stars and a wish on post-it notes, so the stars were on green post-it notes, the wishes were on pink post-it notes. After the children had read the post-it notes, the teacher then collected in all the pink post-it notes, and put them on the document camera, the visualizer, and the class had a whole class discussion about each of the comments. These are anonymous, but the point is, students knew that their comments to their peers would be discussed openly, and nobody wanted for the rest of the class thinking that that was not a helpful comment. That teacher found a clever way of building in the accountability so that students took the task of commenting on their peers' work more seriously. That's the key thing, is what we know from the research, making sure that students are accountable for the quality of support they give each other.

Andrea: Lovely, thank you both very much. Thank you for those questions about self and peer-assessment. I know, as Chris and Dylan have said, it's something that people struggle with. You have some stage advice about a structure and a process to that, and lots of ideas about how to implement it, which I'm sure others will benefit from. Right, I'm going to move on. I've got a question here, Chris, I'm going to ask you first.

We had this from a couple of people. I've got Seona Platt and Rao Ghulam Murtaza who asked this question, "How can we get our students, in terms of testing, how can we get our students to stop focusing on the grade and the outcome, when at GCSE level, that's what they get. Our schools are focused on summative AFL at key stage four, so how do we train them out of it?"

Chris: The way I've seen teachers do it, is to hold back on the grading. For example, they might give students a piece of work and that piece of work they give comment-only feedback on, or they peer-assess, whichever way they want to go with it. It's only when the student then responds to feedback, either from a teacher or the peer, that they get the grade. In other words, it's sort of creating in them, "Right you're going to have a go at this, we're going to give you some advice on it, it's only when you've had a second go and move the idea forward, that you can have a grade."

The other thing to do, a bit similar to what I was explaining about the lesson that my daughter Lorenza did the other day, is giving them three pieces of work, and asking them to rank them. Again, no grades or anything, you just have to rank them and describe, articulate, what's good and what's needed in order to improve these. Then asking them to get out the piece of the same, maybe it's the same essay you've set them for homework the night before, and then have to put their piece of work in the ranking of three. Are they ranked four? Are they better than the best one? Are they between two and three? Whatever. It's only later that you can then need to ascribe that to grades if they are so hooked on grades that they need to know that.

They will know if they're heading for a B, or a C, or an A, or an A-star. What they need is, so what's that extra bit, the improvement they need to look at. Before all this came in, I used to say to kids, and they used to say to me, "I got 68%." I'd go, "Great, so what about the other 32%?" That's what we've got to do. We've got to get them to concentrate on the bit they need to improve rather than just worrying all the time about, "I've got 68%, I've got A-star" or whatever.

Whatever ways you can do that, that's what I would tend to work on. Eventually they get used to it. The students in teachers' classes that have taken on these sorts of approaches where they've really shown that they value comments and advice on improvement above attainment. Eventually those kids come to say, "Yeah, I'm doing all right, I'm heading towards that A, or that B, however, to make

sure I'm going to get there, or to make sure I exceed that, I'm going to do this." That's the important development that you need in terms of the way that children think about their work.

Andrea: Lovely, thank you, Chris. Dylan, have you got anything you'd like to add to that conversation?

Dylan: I don't disagree with what Chris said, but I think we have to understand that for many students, the grade is important. The question is, how can we actually use that motivation, which is definitely extrinsic. How can we use that productively? For me, it's about trying to understand the power of formative assessment to improve learning, even it's measured summatively. For me, formative and summative are just descriptions of the uses you make as evidence. We've seen teachers giving students an exam under test conditions, but then asking them to work together in groups of four to share their responses, and come up with the best composite exam.

This is a technique that Chris and Paul and I called, "Formative use of summative tests". The important thing is, exams are a reality. Students care about the results. The question is, are we helping students do better on the exams by using those exams in a productive way? Obviously if students are just cramming, then that may not be particularly helpful. We need to be aware of that tendency. I don't see any conflict, actually. Certainly by the time you get into the second half of year 11, then the students' focus, rightly, is on doing as well as they can on the test. Right before the test, there's no good evidence, that cramming actually helps.

The more you cram, the quicker you'll forget it. Cramming is actually quite an effective technique if you don't actually ever wanted to remember something for the long term. The more you cram, the quicker you learn, and so the quicker you'll forget it. I think it's about getting a balance between these things. Sometimes we need to focus on the long term, sometimes it's okay to focus on the short term, and understanding your students' own motivations, and harnessing that as well.

Andrea: Lovely, thank you both very much. Right, I'm going to go now to our last question of the afternoon. We could spend hours picking Dylan and Chris's brains, but unfortunately, I'm sure that they would like to go and do other things. I'm going to ask our last question to both of you, this is the one that I was saving about rubrics. You may have already answered, it's entirely up to you. This question comes from Lisa Hogan. Lisa was asking, "Is it better to have scoring rubrics for grade levels that build upon each other year after year, would rubrics with clear concise expectations from year to year help students understand what is expected, and help them move along in their learning?"

Chris: I'm going to let Dylan take this one. It's much more the way the Americans work than we do here, I think.

Dylan: Right, so of course, one of the problems we've had in America, up until recently, was that there was absolutely no coherence from grade to grade. The fourth grade curriculum was decided by the fourth grade committee, and fifth grade curriculum was decided by the fifth grade committee, and more importantly, often the same teacher would only teach fourth grade, and another teacher would teach fifth grade. Teachers didn't see the connections.

One of the strengths about the system in England, and many other countries, is if you're teaching a sixth grade, and seventh grade, and an eighth grade, and then a ninth grade class in the same day, then you see how what you're doing in seventh grade builds on what you did in sixth grade and see how it feeds into what you're going to do in eighth grade. I think seeing those trends is very important, and I think the Common Core State Standards have actually really lined up the different grade contents much more effectively.

The problem is that rubrics can be useful for the short term, sometimes there are skills you need students to actually master right now. If I'm teaching adding fractions, I need students to be able to

add fractions reliably. The question is then, hopefully, I don't need to revisit that again next grade, because it will be something you could assume. The challenge is going to be having the right level of specificity for the rubrics, for the purpose at hand. We need to look vertically to check that we're actually on the right track, in terms of building on last year's work and preparing for next year's work.

We also need to look horizontally to see how this fits into other things that the students are doing. My own point of view is that rubrics can often be far too fine grained, because if you actually focus on a single small skill, then the students can master that skill. The question is, can they do anything else? For me, we need to move the level up a little bit. Then this actually makes feedback much more productive. Teachers are told feedback should be specific, well, in fact, it shouldn't be specific. If it's too specific, then it only applies to the task that students have just done.

It's about helping have rubrics that are useful in identifying where a student is, in terms of learning progression. Then that supports feedback on that learning progression. That needs to have a certain level of generality, otherwise, it's too specific to the task that students have just done. That, to me, is a challenge. I don't think we got it right, yet. I think the problem with the Common Core State Standards in America, is there are far too many standards for mathematics.

The same would go for the next generation science standards, for science education. We're still focusing on minutiae, atoms of work, rather than bigger ideas. If you're in a state that's adopted the Common Core State Standards you have the standards that you have. The important thing is to say, "Are these rubrics providing useful information to teachers and students about where a student is in their learning, and what the next steps are?" If they are, then they're probably okay. If they're not, then you do something about it.

Andrea: Lovely, thank you, Dylan. Chris, is there anything you want to add to Dylan's advice, there?

Chris: No. Although the system is very different here in England, learning progressions are something that we really need to do more work on, both at research level, but also within schools. Thinking about what you'd expect students to be able to do when they're 11 compared to when they're 15, when they're doing topics like horses, are something we need to think about, and something we need to gear our assessments to.

One of the things that's worrying me a little in England at the moment, is because we've just had a decree two years ago from the government that say we should no longer use the level system that we've been using for the past decade, to report on accountability. Many schools have introduced new ways of looking at how students are making progress from year to year. Many of them are looking at expectation at age 16, and then looking backwards to see, "What would I expect by age 11?" I think it's much better the other way around, to build rather than to try and extend backwards like they're trying to do.

Many schools have got flight paths that are suggesting that if you're going to do well by age 16, then you should be here by age 11, and then using the same assessment they use for 16 year olds to assess the 11 year olds. That seems crazy to me, because the types of answers you'd expect from an 11 year old in a science topic or a math topic is very different from what you'd expect from a 16 year old. We do need to do some work on that here in the UK. It's a different problem to what's happening in the states with the standards, but it is something we need to maybe think more carefully about here in the UK. If we're going to have systems, or assessment encourages children to learn, and doesn't say to them, "At age 11 or age 12, you're just not doing very well." I think people who are doing flight paths maybe are doing with some students.

Andrea: Lovely. Thank you both very much. Again, it's an honor and a privilege to sit here and listen to you both talk I know that we only tapped the top of the iceberg of the things that you could tell us and we could learn from. In summary, and again, Chris and Dylan, feel free to chip in. It'll be interesting actually, I might download the transcripts and see if I can find out what I think comes out

frequently.

I sit here and I think for me, somebody listening and picking your thinking, that things that have come out regularly, is that learning is so important in terms of everything that we're doing, and what we're planning for, and what we're thinking about, and questioning, in terms of what happens in the classroom, the how, the why, the who, the challenge, the responding to. The use of questions is so important. Then another thing that's come out really strongly, I think, is evidence. You've talked about evidence in lost of different ways. Being sensitive to it, responding to it. The evidence that tells you about things that you expected, things you didn't expect.

Then the other thing I think that's come out really strongly is the various ways we've got using questions, responding to the evidence, but actually using the peers in the classroom. You have them building their questioning skills, you've had them building their self-assessment skills, their peer-assessment skills. You've talked about them using reasoning. You've talked about them using explaining. All of it, I think, from what you were saying, is about building these lifelong skills to be able to problem solve in the future, and to be able to cope on their learners and performing on their own.

As usual, an absolute plethora of resources, lots of strategies that were linked to classroom evidence, and research evidence. How you remember so many different research studies and cite them of the top of your heads, I will never know. I am in total awe. As always, I would recommend that people share this video with colleagues, and sit and discuss some of the things that Chris and Dylan have talked about, and stimulate your collaboration between yourselves, and ideas of things that you can try or think about. I don't know if anything that you'd like to add to that Chris and Dylan?

Chris: No, just thanks then.

Dylan: No.

Andrea: My pleasure. It's with me then as the chair, just to say thank you again to the National STEM Learning Center for this fantastic opportunity, for allowing us to engage with these educators at the front of the field. It is a privilege. I'd like to thank you in the background, our technical team, particularly Paul Browning, for all that he does, and our mentors and the host on the course, who I know interact in various way with the participants that really helps builds engagement across the learning journey. I'd like to thank the participants for the questions, and then finally, Dylan and Chris thank you for your time, your expertise, and your willingness to share it with us as learners, because we do really appreciate it. Enjoy the rest of your evenings, everybody.

Chris: Bye.

Dylan: Bye.

Andrea: Thank you.