Engaging students in deeper learning through aligning the learning areas

Australian Curriculum: Aligning Learning Areas mini-conference, 22 March 2014

Transcript of keynote presentation

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Session chair

Kathryn Tully

Acting Deputy Director, Curriculum Services Division, Queensland Studies Authority

Okay, without further ado, I would like to introduce our keynote speaker Professor Susan Drake to present the keynote, *Engaging students in deeper learning through aligning the learning areas*. Susan has a doctorate in curriculum from the University of Toronto and is a Professor of Education at the Brock University in Ontario, Canada. After a long career she remains a passionate educator and has had extensive experience in all levels of education, but she is still excited and believes that education is at a tipping point of fundamental change. Her research focus is creating curriculum and assessments that are both accountable for government mandates and meaningful and relevant to students. She has written seven books on curriculum and integration that have been translated into four different languages. Her latest co-authored book, *Interweaving Curriculum Assessment, Engaging Students for Learning in the 21st Century* is published by Oxford University Press.

Susan has worked as a classroom teacher with classroom teachers and with teacher education students. She has presented her approach in workshops and keynote addresses across the United States, Canada, Korea, China, Japan and Thailand so we are very fortunate to have Susan join us today. So would you please give her a very warm Australian welcome to the stage please.

Professor Susan Drake

Professor of Education, Brock University, Ontario, Canada

I'm really excited to be here; I've always heard about Queensland. Somehow I used to think that was all of Australia and now I've found out it's really where I'm at right now. I've been to Australia before but never to this area. So, when we took the little boat cruise up the river the other day, the captain of the cruise announced that Brissie was the best place to live in all of Australia, and I don't know if you agree with that but from my experiences so far, it really has been the best place. Its lovely people; it's just great. The pace, it's kind of relaxed—seemed to me kind of relaxed—and great weather, at least when we've been here. So thank you very much for inviting me.

Today I'm going to do a talk with you. The first part of the talk will be a little bit theoretical and then the second part of the talk will be practical examples, and I'm hoping all goes smoothly, let's see.

So this is a framework that I've used almost all my career as a Professor. It's called the 'Story Model'. It actually originated as an integrated curriculum that was adopted in Ontario by the Ontario Ministry of Education, not as mandated for teachers to do but as highly recommended. So that was its beginning and there were six of us from all different levels of teaching in Ontario that got together for a year-and-a-half and created this, and a book went with it and everything else. What it's done for me has been a way to see the world—and I'm still using this because whenever I try to make sense of what's going on, I come back to this story model.

So you'll see there [are] different frames. On the outside there [are] frames—personal frame, cultural frame, global frame—and so I'm going to talk to you today from my personal frame; from what I know, how I've made sense of the world. All of you are going to hear it from your own personal frame, from your own personal experiences, a constructivist view. So all of us will probably get something a little bit different out of what happens here today.

Culturally though, the next frame and the conversations that I've had in the last two days since I've been here, it seems like Queenslanders very—is that how you call yourself? Okay. It seems like you're very much like we are in Ontario. You're thinking the same way in education and you have the same issues that are going on. So that's why the global is also really important because we are a global world now and what happens to you in education and what happens to us in education, we're all in the same pot and we're all learning from the exemplars around the world. So more and more we are looking the same and facing the same issues.

My personal story; just to let you know where I came from. Now this is March. This was the last day at my house in St Catharines before we left. From far away—the picture's taken from far away—it snowed. This was the eighth day that we were snowed-in to our house this winter that we literally could not get out of the house to go to the grocery store. It's a good thing we didn't have to go to the hospital—and you can see how high the snow is and the temperatures often were in the minus 24, 25 degrees centigrade. So it was kind of a thrill to come here as the exact opposite.

At the same time, this was in my kitchen and I was just intrigued with this. This was the last day before we left. I don't know if you can tell what it is. It's a cabbage; it's actually a Napa cabbage. I don't know actually where it started from but I bought it in the store in October, put it in my refrigerator, chopped it up for one stew dinner, chopped it up maybe a month later for another stew dinner and then finally it got so old and dilapidated I had to take it out of the refrigerator. I couldn't fit it—sorry—I couldn't fit it into that compost; that's our compost thing for our food. It wouldn't go in there, so I just left it on the counter.

I came back and I looked a couple of days later and there was something growing out of the cabbage. I couldn't understand that at all and I'm still looking for an answer; no-one's given it to me. I didn't water it; I didn't do anything and for about a month that cabbage sat there and grew and grew and that's what it looked like the day that we left. A full blooming flower. It doesn't even look like a cabbage unless that's how they start looking. You can even see the ragged edges of where the cabbage had been cut out with the chopping knife. So a bit of a mystery but there's where I came from.

Here's the latest book that Kathy introduced to you, told you about. It's *Interweaving Curriculum and Classroom Assessment*. It is moved from disciplined based right through to integrated approaches to curriculum. To write this book, I have two co-authors, one's in the assessment business and other one is a principal in an elementary school. We collaborated on this book and we talked to people across Canada. In this case, we talked to teachers that we knew were interweaving curriculum and assessment, but what we found was really surprising to us. So some of the stories that I will present in the second half of today, they will be their stories. So you are going to see that little logo up there in the corner of most slides that we do.

So, back to my story model. This is what I believe's happening; we're moving from old story to new story and you all know the old story. Maybe you still have one-room school houses in Queensland and maybe you have some of these high-tech schools. Do you have any like this in Queensland? Yes? Oh okay, so you've got both parts of the story which is very typically how a new story happens. It's true, I believe, for the first time I've been standing, I've been a long time in universities now, over 20 years, almost 25 years, and I've always been saying education's going to change. Education's going to change but it never did, not really in a fundamental way. My sense is that now it is going to change in very fundamental ways.

Why? Because of these catalysts—legislation education, about education. Legislation, just this morning you heard of the new things that are coming in, in your own area. Technology, the really big one, and social media. So many of the examples that I'm going to give you involve technology and social media. Not because I went out and looked for them, because they were there, they were what people were doing.

So, old story, you all remember it, maybe you see some of it in schools that you are in—passive learner, teacher as expert, teacher lecturing all of you people expecting you to absorb it all into your brains. I'm doing the old story method up here right now. Standardisation, bell curve, accountability, comparison, competition and, for me, there's one word there that still sticks out no matter what we're doing and that's accountability. At least where I come from in Ontario, that's a very big word, and in many countries across the world. But the new story—and we're on our way to the new story I think—is this big mouthful; inquiry-driven, technology-embedded, connected classrooms. I actually hear people use those terms to describe what their classrooms look like.

We're looking for deep learning. It tends to be project-based, real-life, constructivist philosophy. Teachers in a dynamic role and someone like John Hattie says, the teacher is an activist, no longer a facilitator or a direct lecturer, but an activist activating students' learning, being a catalyst for change. Global connections, very much a part of the new story, and differentiation, which has been a large part of education moving even more into personalisation of learning. So instead of ‘for groups of students’, it's ‘for each individual student’ and differentiated assessment.

So how do we—how does a new story happen? I've been watching stories for a long, long time on this and it's really two polarities. It can go one of two ways; it can be in education, okay, the old story, we're just going to keep on doing it or we're going to do all this ideal stuff for the new story, but often that doesn't really work because you've still got things left over from the old story, like the accountability that you have to make sure that you have. So the new story seems to be coming together, pulling the two sides, the two polar opposites together until it's a new story and my story.

I would say today, it's an emerging new story but it's emerging very quickly, at least where I come from. After you can tell me, I'd really like to hear from you, where it's coming from here because I'm sure a lot of you could be in my slides today, it's just that I haven't heard your stories yet. So, for me, it's about both and, you can't do one without the other. So you have to have both the accountability, and if you want to have student engagement—that's really what you do want because they're probably not going to learn unless they're engaged, but you can't do it without the accountability.

So these are big issues and discussions that we're having in Ontario now, particularly about math because we didn't do so well in the PISA results lately; we went down. A great, great alarm all across Canada for that and many, many newspaper articles and television shows calling again, back for the basics. At the same time, those in a teachers' college, for example, in my own college were saying, oh no, we just have to have problem solving. So I don't know where you sit on that but for me, I think you have to have them both. So you do—they have to learn some of the algorithms for math but at the same time, they have to do it in the context of problem solving, but that's my own opinion on it. Same with the old whole-language-of-phonics approach; why can't we do phonics with a whole-language setting?

Even the assessment issues that are going on right now—so I know you have large-scale testing; we have it as well too. For many teachers it's a very scary thing. Even for some students it is a very scary thing, but, Ontario, it actually doesn't have any impact on a student's grade in any way. Still, it creates a whole culture of anxiety. So Ontario has kept that but they've also brought in, and I know you have this here too, assessment for learning, assessment as learning, and we have a policy document on it and there [are] a lot of attempts at implementation. We're just starting to get there.

So the first part I'm going to do is accountability and then I'll move into how do you do it.

So I looked at your documents and if you had the book that I was referring to that's up in the corner there, there are all kinds of things in the book that tell you how to do this, but for beginning, it's like a funnel and I'd like you to start at the big picture, that means the Australian Curriculum at this point and really understand it; really know it.

What I'm going to be talking about for all this part about accountability is discipline-based, or it's also interdisciplinary. It really doesn't matter what you're doing, you still need to do these things. So you start with the biggest picture, you funnel that down to your state, your state priorities, then you get down to your school level and then you get down to your day-to-day, what am I doing in my class. What you're doing in your class needs to reflect the Australian Curriculum, and if it does then that will give you a freedom for a creative curriculum rather than having to wallow around. I know in Ontario we have many, many standards, lots of standards. Do you have that here? Yep okay. It always seems to be one of the things that had happened with curriculum documents. Lots and lots of standards, maybe too many. A lot of the curriculum reform around the world [is] reducing the number of standards that you have, but still, what they're aligning, it always is whatever the vision of the jurisdiction is.

So you need to be aligned. There's my picture of alignment. Now these guys aren't exactly the same but it gives you the general idea. The littlest guy and the biggest guy need to be the same, and actually it's not that hard to do. When you start to think this way, you are able to sort of orchestrate what your curriculum might look like. So it's like those Hoberman ball, the Hoberman spheres, do you know those? They're great big balls of all different colours and you just stretch them out and then you push them back in and you stretch them out and you push them back in, that's what your curriculum needs to look like.

Here's my classroom but in it is all of the things, the important things, at the very big picture level. So this comes from your documents and one of the big messages that we try to give in our book is what you really need to know in the documents is a front matter. Besides all the little ones that you're responsible for today in your classroom, what you really need to also know is what is in the front matter; the introductory material. Is there an umbrella, and yes there is, across everything that you're supposed to do and for you that's the Australian Curriculum at the biggest umbrella level.

This is part of your front document material. I can't actually remember where I got it but I'm interpreting it now into, here's accountability, how to design curriculum. I know it would be familiar to you all. There were five steps to it; I'm going to identify these as backward design because there's the big piece for accountability, is the process of backward design. Sound familiar to you? Yeah.

Here it is here; identify curriculum, develop assessment, sequence teaching and learning, and you've also got there, make judgments—that's your summative, your final assessment—and use feedback, and

I'm interpreting that as your assessment for learning. That's your cycle of how to plan for curriculum and also to be accountable.

So when we do backwards design, I know it's Wiggins and McTighe's framework that a lot of people use. Someone asked me yesterday about it so you're probably familiar with theirs. It's a model that comes out of business. We've added two pre-steps to it because we think that their importance of it—before you even start the backward design—you need to know your students and you need to know your curriculum. When you've done that, then you're ready to really create a relevant curriculum.

Then the steps, which we already kind of did with the yellow circles in the last one, but I'm going to put them into my language now. So, first step, identify what's most important for students to 'know', 'do' and 'be'. I know we're always asking what should students know and be able to do, that's the big question; but I think a better question is, what should they know, do and be? How do we want them to be as human beings?

Just a short little story on that. I worked for three years on a team. We were integrating curriculum; we integrated it in a number of ways but the base, the home base of it, was science. We actually took the Grade 9 science curriculum and we taught it in five completely different ways. One was, we worked with the English group and we did a debate. Once we did science fiction and we took a novel and actually the science teachers taught it as if they were English teachers; we learned it from the English teachers, how to do it. Then they did experiments based on what was in the novel. They created their own experiments. We did things like mantel of the expert and science symposiums. We did the story model. We did all kinds of different ways and it ended up being a really exciting time.

When we first began—so I'd been hired at this school to come in as a change agent and, like I told the group yesterday, that didn't make me very popular with a lot of people. It was at a time—so it was at a long time ago now—where Ontario was mandated to integrate the curriculum and this—some people liked that and they jumped right in it and they loved it—but a lot of people resisted it, especially at Grade 9 level because that was now high school and nobody serious in high school did any curriculum integration.

So in our first meetings, the principal had a meeting with the science group and we all sat around and then the principal challenged them. There were three guys that I was working with every day and we did this for three years. So the principal challenged them and said, well why? Why do they need to memorise the parts of the microscope? They kind of scratched their head and they said, their answer was, because in Grade 11 they will use the microscope. That actually was the answer, it was a serious answer. They started to be a little puzzled themselves when they found out what their answer was.

That was the beginning; when we first started, that's the level of what they wanted students to know. They were scientists, being was not important at all. By the time we finished they understood and articulated that what they wanted students to be was a good neighbour.

So it was a long, long trip/journey that they went on but it was very sincere. By the time they were finished they recognised that their mission in that classroom was to create the kind of person—not create but help; what would be the right word for that? Okay I've gotten lots of good words there. Model? Mould someone said. I'm sorry I didn't hear that one up there. Nourish, that's a better word than mine, create. So find Pygmalion thing, but that's how much their thinking had changed that they realised, okay, it didn't really matter if they knew the parts of the microscope. What really mattered is that they'd like them to live in the house next door to them.

So I don't know where you sit on that kind of fence but that's the reason why we have the 'be' in there. In Ontario, the latest thing that we are bringing in now in our policy documents, mental health. I'm not sure if—I haven't heard that around here but it's become very big in Ontario partly because there have been so many problems with the way students, with being. At Faculties of Education we've been mandated now to teach mental health and that's brand new; no one would have ever thought of doing that before. So that's a little bit about the 'be'; I'll talk more about it later.

The other part of the pre-step, the first one, what's most important to know, to be, and what's a good driving question that comes out of that and that's going to drive your curriculum planning. Second one; create a rich performance assessment task. I think some of you are familiar with rich tasks; you know what they look like so that's great but this is the demonstration. This is the assessment of learning, the summative assessment. Doesn't mean you can't have a test or something as well but it's a demonstration of what a student can do and what they know.

Then the final step; what are you going to do every day? I know one of the things that you also know is, originally when I grew up being a teacher, as you can see I've been doing it for a long time, and when I started, there were no books of standards. There was nobody telling us what to do so we kind of made up some objectives and then at the last minute we thought of some assessments, or for other people, some of them took out their assessments that were 10, 15 years old out of the filing cabinet and gave them again. It's just a whole lot different now. Back then we didn't have the understanding that we do now of what makes good curriculum.

So here's the part for 'know your own students'; what's their prior knowledge? Some diagnostic assessment there. What kind of learning styles do they have? All different kinds of ways. What do the cards say about them when they came from previous grades? Although some people don't like to do that. They don't like to be influenced by what happened before; they like to have a fresh start. In other cases, you really need to know it. Some kids maybe can't see very well, and they're at the back of the class, or they can't hear very well. Those are the kind of things you do need to know. Kids themselves like to do if you give them inventories about their learning styles or multiple intelligences, things like that, so that they become aware as well. How do I learn best?

The second one, I already talked about is, knowing your curriculum. So the Australian Curriculum, your Queensland Curriculum, and your grade-level curriculum. I know a trick; it's not really a trick but something that people get into. I've seen it myself. It probably never happens here but, for example, one school that I was in in Ontario and I was working with a teacher, well two teachers, and we were doing some really interesting things with Grade 4s and the principal came in very excited and said, come to my staff room, I want to show you something. Up on the wall, all along the wall, were all of the, we call them expectations, for Ontario. The teachers had to come in each day and check off which expectations they had covered. So you can imagine—well from my point of view, this is pretty deadly curriculum and you're sure not thinking in a very big picture when a big chunk of the standards of the expectations were actually the scientific method—but often those teachers didn't even see that because they had to do one at a time; just one piece, one piece, one piece, one piece.

So I don't know if you get into a trap like that. That's one of the traps of having lots and lots of standards when really they need to be chunked together into meaningful chunks. They actually do that quite easily. So here's step one, from my point of view, how we would do it. We want to create an umbrella over your whole curriculum and the essential questions to guide the learning. So here's what the umbrella looks like but under this umbrella you'll see the ‘know’, the ‘do’ and the ‘be’.

We've already talked a bit of what they are. The ‘know’ is going to be big ideas, and if you use Wiggins and McTighe's language-enduring understandings, big understandings, the essential questions come out of the ‘know’. The ‘do’, we have started to call the twenty-first century skills. I think that has some meaning to you in this room, twenty-first century skills? Okay, really basically, they are big, interdisciplinary skills. They're very complex, there's lots of parts of them, they have not been very well defined and so, in some ways, they're very hard to assess, and some people don't like the twenty-first century skills because they think it's too connected to business. However, there's ‘being’—we did finally use this title because it was everywhere in every country. Everybody kind of had an idea of what it is.

I think what's happening now is with PISA, for example, which is very influential where we are. Is it influential here? Yeah, I know there are lots of different similarities. PISA is now starting to measure twenty-first century skills. They've already done it with digital literacy and, right now here in Melbourne, there's a consortium who are figuring out what is collaborative problem solving. What does it look like and how do we assess it? There are plans in the near future to begin to assess collaborative problem solving around the world. So, in my thinking, because we teach what we test, it's not going to be very far away when we're really going to have to know what collaborative problem solving is, and we're going to have to teach it. So to me that's exciting.

Here's what I think is happening with your Australian Curriculum. You can see the different parts. This comes out of Jenny Nayler's paper, may come out of your documents too. These you'll recognise. These are twenty-first century skills.

But why? Why have that umbrella? That's a lot of work. It's actually a different way of thinking about curriculum that we maybe haven't been doing. Actually, once you do it, at first it's hard to do because we haven't really been taught to how to look at things from that perspective, but once you do it then everything becomes much easier. A backward design becomes natural and simple.

So here's why. There's the structure of knowledge as Hilda Taba and Lynn Erickson have constructed it. It starts at the bottom, filled with little facts. You put some of those facts together and you get a topic. Then after the topic, you put some topics together and you get disciplinary concepts. Then above that are interdisciplinary concepts, big ideas. You can see they're getting less and less so we've got many, many facts and not that many interdisciplinary concepts or big ideas. At the very top is theory. What Erickson says about this is, we don't do theory in our high school and elementary classes, we only do that at university.

I'm not sure if that's true in your experience or not, but I know in our Ontario curriculum, most curriculum that's going on is in this area here. Most kind of questioning—and there's a lot of talk about how do we get higher order thinking, how do we get critical thinking—that's what people want but we're just learning how to do that.

So here [are] some examples of big ideas; see if you recognise any of those in your curriculum. Now, some of those can be disciplinary or interdisciplinary, it's really interpretative. I actually took all of these from disciplinary lists. They did belong to a subject area once but I think if you look at it, continuity and change can be in a lot of subjects as relationships whole and part, patterns; so these are big. Remember, what we're trying to do in order to make our curriculum meaningful is to work first from the very big ideas, from the umbrella.

Essential questions are somewhat the same. They're big, almost abstract, and you can get at them all kinds of different ways, which, again, allows you to create an interesting curriculum. So you can see some of them—the first one, what is love?—never have been really answered. Philosophers have been trying to answer this for centuries, physiologists now, psychologists; but we've never really answered it. A very popular question for students in school.

Here's the ‘do’. Now I know you're familiar with Bloom's taxonomy, his original, probably, and now this one that has been changed in the early 2000s. All that's really been changed is the top part of it. So at the bottom—remembering, understanding, applying—but moving into at the top, the final top part—creating—and the more that we move into the twenty-first century, the more important that creating actually comes. So, for example, you heard in the introduction that I had been talking in Asian countries and the reason that I was asked there is, although they're doing very well on the tests, they wanted their students to be more creative and they didn't really know how to go about doing that. So their students were very good at copying, and if you've been, for example, to China you know there's lots of very, very

good copying going on, but they weren't good at innovation. In particular, the emphasis in South Korea was on that and they've done very, very well and are doing very well.

One school district that I was in, they had 20 per cent of the time dedicated to creativity without subject areas at all, so this isn't just hanky panky or fly-by-night. Those countries that are doing so well want to be creative—and we also want to be creative—and a big move that's coming now is design thinking which is really inquiry. But it's inquiry into how do I design; something to make life better. They say that, in this age of technology, that people that are going to be successful—everybody could have the same information, you can find it, you can look it up and Google it—but the really successful people are going to be the ones that can create something out of it that's helpful or innovative.

So that's just one way of looking at Bloom's taxonomy and why it's important in the twenty-first century. Higher order thinking skills at the top includes all the things that used to be there—synthesis, evaluation, analysis. So here's a list, I've just cobbled them together, every district, every country has a list that's slightly different. I've put down the very first ones, some of the ones that you had in this country.

Communication, of course, in all of them—problem solving, higher-order thinking skills—now that I look at it there's not many that are missing. Citizenship actually emerging and, again in the Asian countries, Hong Kong for example, they have a very broad-based umbrella, if you want to describe it that way. Citizenship, nationality and all of these other things are very important to them, as they are in Canada, and in looking at your own Australian Curriculum, as they are here.

So, obviously technological literacy, lots of different things for the ‘do’. There's inquiry as one of the twenty-first century skills. Now, the point of this slide is that this is spiralling. So you learn the basics in Grade 2, then it becomes more sophisticated in Grade 5, or you call it Year 5, sorry, and then in Year 8 even more sophisticated. That's what's happening to all your twenty-first century skills; they're spiralling. Now research—very, very important skill for the twenty-first century—and our students, and probably yours, are learning them in Grade 1, learning the first steps of research, which is obviously an inquiry part too, and how to do data management. I never learned that when I was in school and I know many of my graduate students come in and they have to do a research study and they're terrified. They actually don't know how to do it, but if they've been learning since Grade 2 then they'd be comfortable with that skill.

So, I think we need to understand that whatever level we're working at, we're all working at the same thing if we look at it from the big picture. There's inquiry in geography—same thing, I think the words are even the same—Year 2, Year 5 and Year 8. Here's why it's important, because when you put those two things together, and this is theory, but the theorists are saying, the only way that you can get that higher order thinking at the big, is to work with big ideas. You'll never be able to get

people to do these skills that are up at the higher end unless we work at the higher end on the knowledge scale which is at a more abstract end.

So that, to me, is really an important—for me, it was a really important ‘ah ha, now I understand it’—and, of course, we want them to be successful learners, confident. Here's what one of our provinces [has] said, here's how they want their students to be. You can see there [are] lots of things you probably would want your students to be. Of course, one question is how do we measure this? If it can't be measured then it can't be taught. That's one philosophy. For a long time when outcome-based education came to Ontario, that was the philosophy, and especially in the United States. If you could see it, you could observe it, you could measure it, it could be taught—but they wanted a value-free curriculum. It was, in many states for a long time, very proud to have a value-free curriculum, except that it just didn't work that way because all curriculum has values. Some bad things happened in the United States and now they're looking at. Okay, we need character education. We need to start thinking about how we want people to be. We want them to be that nice neighbour who can live next door.

How do you measure it? Ontario, we measure learning skills. Now we measure them but we don't give them a grade. We don't give them a percent. We give them a satisfactory, an excellent, a good, needs improvement, and, for many parents, who cares. What really they want to see is the grade, but they're becoming more and more understanding that it's those things, those learning skills that are going to make their child successful in life. So there are more and more parents who are saying now, I don't want to see this as satisfactory perseverance; I want to see this as excellent. All of the new, you'll probably hear this in the assessment things, the new thinking in assessment about the growth mindset; so you want to talk to students about their effort, how hard they worked, the good things that they did rather than how smart they were or how talented they are. So they become confident in themselves as learners, and that's what the assessment for learning.

So the ‘know’, ‘do’ and ‘be’, all very interconnected, and that's your first part probably, I think; the most important part of the whole backward design. If we get this right, then the rest is right. Second part, the rich performance assessment task, those are qualities of it and I know you're familiar with these. They do have to be do-able; they've got to be fun. I forgot to put fun down there. They need to be fun. Learning can be fun.

Here [are] some samples. Medieval fair, I was involved in one of those. That's the one where the school actually had all of the expectations up all around the staff room, but we had a big fair where all the parents came in and all the grades in the school came in and the little boys got up and danced medieval dances and brought in their food and then their castles and they dressed in costumes they made, and it was a wonderful event, and guess what? We actually covered all of the expectations but we started with the big picture. In the end, we had a little trouble fitting in pollution. Pollution in medieval times, it didn't kind of fit our big picture but you know what? It turned out that one kid in the

class in Grade 4 was really interested in pollution; he went out and researched it and reported it to the whole class so we actually covered all the expectations.

That's kind of the miracle of working big picture, all the little ones fall into place. They just do somehow. So I know you've done things with water testing around here, making gardens, and they involved a lot of different subject areas. Creating a new product and marketing it, that's a very popular one.

Here's one out of Australia from Australia's Science and Mathematical School, are you familiar with it? It's in Adelaide. It's connected to Flinders University. They've been doing integrated curriculum for a long time; it's a high school. They've got lots of interesting things going on, but one rich performance task they've had for a long time, and I first wrote about this in 2007 and now it's 2014, and you can—I just found this two, three days ago on the web exactly like they had it in 2007. I'm sure they've ironed out a few of the wrinkles but, in the end of a long period of time, the students, they create nanotech problems. Little, little, little, tiny, tiny, tiny, tiny thing, prototype, and they figure out how they would market it and sell it to different people, and they have a fair. This is a web quest; it starts with a web quest, and the students—it's self-directed learning in lots of ways—but it's a really interesting thing and they develop really interesting products.

How do you assess it? All the same ways you would assess anything. So portfolio's a very popular way of doing this kind of teaching, but you can have a test and just be observation. Usually there's a rubrics, often co-created with the students, where they have success criteria so they know what it's going to look like and what they have to do to make themselves successful. You know all these—peer assessment, self-assessment—but what do they do because it's integrated? Because that's one of the sticky points.

Well, one of the ways that one of our—not in the Australian project—but what they did was they kept a chart of all the expectations that were being taught through an integrated unit. Each time a student met one of the expectations, the teacher put down a level because we do levels instead of percentages. One, two, three, four she put down; okay expectation five, level three. Then at the end what she would do is she'd look at her chart and she'd say, okay geography. She'd look across geography and she'd see this kid had done level threes right across which meant that's what the child, what they reported was a level three for geography. Similarly for English, or whatever subjects were in there. So that's how she kept a record of it but there was very detailed, every single expectation.

Other ones, you might have one assignment and the different subject teachers mark it for their subject. I'll give you a better example of that in a minute. Sometimes—I don't know how you feel about this one—the same grade was given to every subject. I know teachers have a hard time getting around that but sometimes it was so integrated, what they were doing that they couldn't decide. Is this science, is this geography, is this history, and this is a level four? This work is a level four. So

that's the level that the student got in each of the subject areas. That's just one solution to it.

In the Australian Science and Maths School, they did an essay on the impact of technology on society, and they had in it tech, history and English. They had rubrics; you can see rubrics for each subject area. The English teacher marked all of the essays and students had a choice. You could either do it through technology lens or a history lens, so technology teachers marked their part of technology and history teachers did their part. Now this is a very sophisticated school, they've been doing it for a long time and they're very interested in assessments so they've really kind of worked things out here. Another time they wrote a persuasive letter in one of the activities that they did, moving towards the nanotech exposition. The English teacher actually taught the other teachers; here's how you grade for English. So then all of the teachers took their part in it but they had learned something.

In that story I told you about being with the science teachers; we learned a lot of things from the English teachers. They actually gave us lessons on how to do things, and sometimes we integrated with them, with their English students as well.

The last thing they did at the Science School is, they invited in experts to the final fair and they taught the experts in the field how to assess. They gave them the rubrics—they're all online, you can see all of them—and that's how the students are finally assessed, by the community, by the experts, not by the teacher, not by themselves. So that's a real assessment. So the secret to me of the whole thing is an engaging, rich assessment task. It doesn't matter if it's disciplinary or interdisciplinary. It's just that often when you get into these it's really hard to stay in disciplinary boundaries. You can but you don't need to.

There's the last step of the backward design. We really haven't done anything yet. We've figured out what we want them to know, do and be. We've created a big task. We have an essential question and know what are we going to do every single day. This is where we've got to be connected to the standards. Again, it's a really important thing to the accountability. So if you've got an activity there that you love but it doesn't connect to anything, if it doesn't go back to your umbrella, if it doesn't lead the kids to the rich performance task then, unfortunately, according to this system, you can't do it because it all needs to be aligned. So you find you have a curriculum that's nice, it's streamlined, accountable, and usually you can get that fun activity in there.

So now we're going to switch gears a little bit here, student engagement, accountability. So a little personal story here, going back to the personal lens, how did I find this out? It's a bit of a confession but when I very first started teaching, I wasn't very good. So I was young, I was scared, I was a single parent and my mother told me I'd better teach so I could be home with my son for his holidays, which made sense but I didn't know anything. I'd gone to school and I'd memorised anything and I'd forgotten anything that I'd ever learned. It was a time when they were desperate for teachers and if you walked and you could breathe and you walked in the door and asked for a job, they'd

give you one. So I got one.

My job was in phys ed and English. I did have qualifications for those things and also I didn't even go to Teachers College because they were desperate. So it literally was baptism by fire. I went in. I taught at this school that was a tech school for boys. There were a few girls in it, in my girls phys ed, I taught that, but mostly I had to teach boys, and I had the inspector come in one day. I had 36 boys lined up in six rows of six and the lines were all very straight. I did a little prayer before the inspector came in and I taught grammar, nouns, verbs—I don't know if you're teaching grammar now, I think we're actually going back there, it's a bit of the both—and, but it was a very terrible lesson. The boys, they were actually quite good. Nobody got up and yelled or threw anything, but whenever I asked a question, the boys would put up their hands and I'd ask Bob and Bob would give the wrong answer.

There were 40-minute periods and for 40 minutes every answer the kids gave me was wrong. It was really a terrible, terrible experience. I left the class and the supervisor came over and he said, you know, I actually think you're not going to enjoy this profession and I actually think you better get another job. I was really upset because I was just glad they hadn't thrown spit balls and all the kinds of things they might have done but they didn't. They were relatively good except for the wrong answers. My question was, okay, I cannot be a disciplinarian. In the school there were big tough guys, they walked around with almost whips, the other teachers, and I was just this little young thing that the first day I had gone to the staff room, they'd said, you can't come in here this is for teachers only. So I didn't wield this presence of you be good.

So I knew that what I had to do was find student engagement. The way that I did it, the first thing that I did was, I happened to take the girls I was teaching folk dance to and I brought it to the English class, and we did body language and we did a lot of things. So I had the girls teaching the boys how to do folk dance without any speech. That engaged them. In fact, it was so popular that in the little window in the door, all these students from other classes all came and peered in to see what was going on because they all wanted to do something like that. Eventually it led to a course that I taught, that I developed, that lasted for many, many years, long after I went that really; it was just an integrated course. The kids called in psychology; it was documented as health but really what it was, it was about them. Who am I? How do I make my life better?

So it had some science and it had some health in it. It had some physical—it had all kinds of stuff in it but it's what captured their imagination because it was about them. So that's how I—it was an integrated course, it didn't really fit in to any guidelines. Somehow I'd gotten, I don't know how I did this, but got permission from the province to do this. So that was my beginning of understanding, and from there I got to be the provincial expert in this when they brought it in, as they mandated as policy out of the blue one day it seemed. We got in a new government and this curriculum came in and they mandated integrated curriculum and no one knew how to do it. I was the closest thing so I got to be the expert. I really didn't know anything about that then either

but together, and with a lot of people, we learned a lot of things.

So here's what we learned—student engagement, those are all kinds of things, buzz words you've heard around. In Canada, the studies are showing that students are bored. Do you have similar studies? Is that okay, yes, no? Yes? United States, I know, students are bored. So what do we do? Well, we have to teach differently, and one of the ways here, an article from last week from a website called Mind Shift. What keeps students motivated to learn, and I know you can't really read this, but integrated projects. So here's one from HiTech High—integrated biology, an art project asked them to research the origins of disease that had significance for them and create a project around it. Simple question, personally interesting and relevant to a student and they could do any; do it in many, many different ways.

Here's another one from, in the same article, it's an integrated—can you hear me this way? Integrated humanities maths science project—students read Sherlock Holmes, wrote their own version, became experts in one aspect of forensic, created a crime scene in their classroom and taught everyone assembled about a part of the forensic process through a stop animation video. So that's a pretty interesting thing to do and pretty far from our Ontario curriculum, or what you might think of when you first originally read it.

So what is curriculum integration? It's a continuum. It may start with just subject areas being integrated. A very popular one is science. Let's put together physics, chemistry and let's do a general science. Moving right up to trans-disciplinary. So I'll just show you a graphic for them. So the lowest level—and these are not good or bad, they just are. They're just more degrees of integration. So fusion—I'll describe each one in more detail—then multidisciplinary, interdisciplinary and trans-disciplinary. Getting deeper and deeper into integration. Why integrate? Well, student engagement being the very big one for lots of reasons that people say, real world is not divided into discipline. I go to the grocery store, I've got to know more than one discipline to get through successfully. There's so much duplication in our documents, especially if you look at it from the big umbrella. So this avoids duplication. We can do depth. It's much more efficient. It means you can cover a lot more material and you can assess a lot more because in one assignment you can assess different subject areas.

The brain research supports this, this idea that our brain is actually a plastic; it is growing, that it's not fixed and that the more connections we make, the smarter we are. So that's a pretty good reason to do it. Our curriculum documents pretty well all over the world support this; at least they say they do. There's a very long history of this. I'm not standing up here today and this is the first time probably any of you have ever heard of it, it began in the late 1800s, certainly was there in the one-room school house. Went through progressive education in the 30s and has been going—I've done an article on this with a fellow—it's been going like this ever since. It's fashionable, not fashionable, fashionable, not fashionable, fashionable, not fashionable, but I think now we are getting to a fashionable point again because there's so much stuff that has to go in the curriculum. If you look even at the logo that you had for your conference, there's so many words around there

that all have to be done. How are we ever going to do? How are we ever going to do this very crowded curriculum? How will we uncrowd it?

In all the new literacies, twenty-first century skills, critical literacy; Queensland the home of critical literacy really, with Allan Luke's work. We work with that all of the time in Ontario but how do you add that in? So these are reasons for integrated curriculum. The research tells you—and I've been looking at this for a long, long time—the research tells you that students do as well as or better academically, which is what parents care about, but they also do better at everything else. They like to be at school, their attendance is good, they're engaged, they're more tolerant of other kids, there [are] just so many positive things that come out of this. So you kind of wonder why people say, well why not try it? Part of it is, it's hard to find the research. So it's in these different places—social, emotional learning, arts-based research, project-based learning—it's there. A good place to find it is in a website called Edutopia. Edutopia is a good website because they're actually doing a lot of this research now.

So you can find it; it is supported but it has to be rigorous. So if we're going to do it, we have to do it right. We have to cluster our standards into meaningful chunks. We have to align it to the big picture. When—well whenever it's right, I think. One thing you don't want is teachers who don't want to do it being told you have to do it because it will be sabotaged for sure. You want it to be relevant. So when teachers get together—and you can do it by yourself, certainly—when teachers get together you want it to be, they're very creative and they can do great things.

So how? Okay I'm going to show you, I hope here, a short video.

Female 1 — When we decided to become an interdisciplinary school and interdisciplinary project-based school, there was nowhere to go to figure out how to do this work. So we were at a crossroads, either we say, oh well, there's nowhere to go, nobody's doing this well, let's let it go, or we figure out how to do it.

Female 2 — Do you need to know DNA to do these? But you don't need these to do the content.

Male 1 — Okay.

Female 2 — Does that make sense?

Male 2 — Our summer institute is really an—it's an opportunity to get core subject teachers and career technical education teachers together, in the same room with large amounts of uninterrupted time to develop interdisciplinary units.

Male 3 — Okay, when they're leaving algebra—what is the stuff that I know no matter who taught them algebra one—this is the stuff they're supposed to be doing.

Female 3

So they look at the current data of the students coming in and once they've identified the benchmark standards, they're going to write assessments in their content areas first, so that they know what it is that they're teaching to mastery.

Male 4

We essentially begin with the end in mind and we think about, okay, if the purpose of this project is to get students to demonstrate mastery with certain concepts, what do each of us need to do in order to get them to that point.

Female 4

And then we sit back and we all talk through our standards and we explain them to each other because I don't really understand the history standards, the maths standards—so those content area experts explain them to me and we start talking about natural ways that those standards can overlap.

So this will take care of the creative part of the website, them actually creating the crime story. We'll be talking about flashbacks and foreshadowing and all the things that…

Female 3

The crime time project is basically a forensics project and basically they have to solve who may have committed the crime using the content areas that the tenth grade is in to make these determinations.

Male 5

This is my third year being a full-time teacher in the classroom and, up until now, I've worked collaboratively with other teachers on various things, but we've never really done this level of team planning across the curriculum, across the content areas.

Male 4

It's story telling here, DNA here, geometric, well yeah it's like…

I think that this allows me an opportunity to gain some perspective and gain some sort of exposure to what my colleagues are doing, what's working for them, and it helps me improve my own practice because I'm not in isolation.

We are expecting…

Is that something that we [are] as a team agreed upon, that we are expecting big picture wise out of media, that they are designing their own website that follows the general schema of that.

Female 5

This will be their…

For myself and Jenna, it being our first year of teaching, learning how to teach for the first time, our plan for the first time. I'm learning about forensics, I'm learning about math and I'm learning about all of these things and it's kind of, it's exciting.

Male 4

So where should we begin?

Female 4

I think we have to start with Luke's stuff because this is the most sequential I've ever witnessed.

Male 5	Okay.
Male 4	At about week seven in intermediate I'm hitting the stuff they need …
Professor Susan Drake Professor of Education, Brock University, Ontario, Canada	So you can see in that, imagine that, two of those teachers were in their first year. They had to learn a little bit about the other subject areas but they were learning to plan collaboratively and they were learning big picture. So that's part of what it's about and it's actually, from the teachers I know that have done it that way, they've said, the first time through, the most exhausting thing they ever did, but the most exciting thing. And they traded it off for the excitement because they did it again. So fusion, it can be anything. I've got three little circles of something fused in there but it only needs to be one and it could be technology, something that's outside of the curriculum, environmental literacy, any of those different literacies. Character-based education is a popular one to fuse into the curriculum. Here's an example of Angie Harrison from Ontario who does fusion; this is her website. She has student wonderings—what's outside my classroom? She had them wondering—what's outside other student's classrooms? So this is what she did.
Male 1	Classrooms are becoming more connected every year as technology changes teaching.
Female 1	For this group of kids in Keswick, the latest addition is Skype. As Naomi Parness reports, they are talking to other schools all around the world.
Female 2	In this kindergarten class,
Female 3	we've gone all the way across Canada to British Columbia.
Female 2	Students learn about the world around them [phone ringing] by visiting it [children talking] through the wonders of technology. Students in Keswick are talking to students in Surrey, BC using Skype.
Child 1	You're far away.
Female 3	Very far away. We're on the other side of Canada. It's pretty amazing.
Female 2	The idea is simple; they talk about what they see around them in the school yard.
Child 2	Because we have evergreen trees.
Female 2	But by using the technology, they're learning so much more.
Female 3	They need to know that there are children all over the world, not just here in our own school, in our own community.

Female 4	Gives them a little bit of perspective of, we're a tiny dot on this whole earth.
Female 2	And the students in this class really are learning about the entire world around them. They've Skyped other places in Ontario but also in Manitoba, Florida, Hawaii, Mexico and even Switzerland.
Child 3	I like about Skyping because I get to meet new people and I get to see what their classrooms look like.
Female 2	The students use Skype several times a month. They also use tablets and other technology in the class.
Female3	I think, as educators, it's our job to show them how to use the technology for a greater purpose. So how it can connect us, how you are part of the world, how it's not just something to sit. It's not screen time. [Children talking]
Female 2	A whole new world of learning, Naomi Parness, CTV news.
Professor Susan Drake Professor of Education, Brock University, Ontario, Canada	So that was Angie fusing technology into the curriculum. This was a sample of the e-book that they put together of pictures of what was outside their school that they would share with other schools. One other thing that Angie does is something called Faraway Fridays, and on Fridays they connect with somebody else around the world and they read stories together. Another movement that you might be interested in is called Global Read Aloud. Have you heard of that? So, and it's—if you just look that up—there are people from around the world that the kids develop questions for books that they are reading. For example, it might have been this book that was right there, Dr Seuss, well it won't be because then what they do is they send their questions to the actual author of the book and one day all of the students that have participated in this from all over the world connect, via technology, with the author who picks out their questions and answers their questions. So it's really a very interesting literacy technique that brings in, fuses into it, global literacy. Multidisciplinary, now you can see this one, this is where usually people start because you can do the same thing you've always done but it's a little more interesting. So that's different classrooms many times, or it's different learning centres if we're down in the lower grades. Here's an example in [Havergal] College. They have a beautiful park outside their school and they wanted to tech biodiversity and have them really appreciate the park. So there was their ‘know’, their ‘do’ and their ‘be’, and the questions they asked is, who are we on earth and what are our responsibilities, and what do our actions say about who we are and what we value? Their rich performance task was

similar to the one you just saw, they were creating an e-book, and [Brooke] is the name of the park behind them. In each subject area they had different activities that linked to that. You see one of them was 36 weeks long; that was when they made pictures of the park for their art class, but in each different subject area they had a different activity that joined up and there was an integrated task at the end of it. Sometimes there isn't but in this case the e-book was the integrated task.

So that is multidisciplinary, but actually, when I talked this out with them, to go into the book, they described themselves as multidisciplinary, but the more they just talked about what they did, the more they said, oh no, actually, we're really interdisciplinary. So there's interdisciplinaries; more integrated, as I described before. You can still see the different subject areas; in the planning you're still thinking of them first but there's something that's connecting you in the middle—and this really should be a Venn diagram but it's not. That's my lack of expertise here; I couldn't find a proper Venn diagram to do this. I'm sure there's one there but the connections are really usually the twenty-first century skills or the big ideas, or sometimes the 'be'. Sometimes it's just work ethic that we're connecting across three different subject areas.

I'm going to give you some examples, here's Molly [Beckley], she comes from Ontario, Grade 6, Simcoe County. She belongs to an organisation called I Earn Canada. Anybody here know of or belong to I Earn? Okay, well she belongs, in a very big figure in I Earn Canada and that often means technology, but she's one of the ones who only started with one computer in her class and was able to do a lot of these things with one computer. Now she has a lot of things so she shares her practice with others with all these different ways and she teaches her children technology. So let's see if this works, we'll just …

Children	A is for apple, B is for ball, C is for cooking, D is for dog, E is for egg.
Child 1	At Fieldcrest, we do things a little differently. We're educating the imagination and creatively learning our abc's.
Child 2	A is for animate. We love to create interesting animations.
Child 3	B is for blogging. We communicate with the world by posting on our blog. We'd love for you to visit and post a comment for us.
Child 4	C is for collaborate. Collaborating on challenges helps us solve problems together.
Child 5	D is for document camera. We use our document camera to show our thinking to our friends and teachers. It helps us prove how we solve tricky math's problems.
Child 1	E is for [Enmoto].
Child 6	Enmoto is a place where we can post reading responses…

Child 1

… share our ideas and plan projects, together.

Child 7

F is for feedback. We can use apps to give feedback to our friends. It helps them improve their work.

Child 8

G is for green screen. We use green screen to create videos. We can be anywhere in the world, even in the rainforest.

Child 9

H is for holiday friends. We exchange holiday…

Professor Susan Drake

Professor of Education, Brock University, Ontario, Canada

So you can see she goes all the way through the alphabet with some technological innovation that the students are using, but her main love is I Earn Canada and they're involved in different activities there but I'm going to switch you over here to I Earn Australia because you have this organisation here. It's a wonderful organisation if you really want to jump in and get some very interesting activity for your students. One of the big ones in the middle there is the teddy bear project, where kids send teddy bears to different parts of the world and they send different messages back and forth. It's a pen-paling kind of thing but it really opens up what's going on for kids and this is easy to join up, just go on to I Earn Australia. There's the teddy bear project, that's going on right now here. You send diary messages to the visiting bear when the bear comes from another place to your class. You send out daily messages back to the students in wherever it came from. It might be from Canada.

Here [are] some of the projects that I Earn Australia's been involved in already. One, the top one over there, is reptiles, in the far corner, which is something that's probably interesting to your students. Below is the gorillas. The kindred one is finding your family, so ancestry. The year 1945, you're doing this with countries all around the world, not just with your own students. Fight against child labour, and the bottom one is, making Christmas cards for kids around the world. Molly's special story, I thought, she wrote stories and the children in Afghanistan wrote stories about peace, what peace should look like. Then they exchanged their stories. Somehow the Canadian government was so impressed with what went on that they supported the Afghanistan teacher bringing the children's stories over to Canada. So they sent him over here and he read their children stories. Of course, they had one computer and somehow they had internet over there and so the children over there watched their stories being read out and explained in Canada. It's just, to me, a touching story, and Molly's classroom is just alive with things like that.

Now I Earn Australia is connected to the flat connections which is holding its conference in June 2014 in Sydney, Australia. So they're bringing in students and teachers from all over the world if any of you are interested in getting involved with global connections and integrated curriculum.

Okay, so the next person here I've got is Aviva Dunsiger. I'm going to go—I know I've got a little timer on me here—so Aviva's a great teacher who tweets everything. So this was just before I came here, actually, I think in February, she was getting—her principal was

inspecting her and so she put her entire thing on tweets, as you'll see. She's also on her blog—was where you can get these things—and she was having project-based learning, understanding organ systems. She says—I was giddy with excitement thinking about this—she based it on the book, the Magic School Bus. She figured out her umbrella had a time, so she saw the big picture. She figured out her rich performance task; they were going to each of them design a body system that worked, use elements of design; they were going to be assessed in art. They had to make a musical composition of the body part in action and they had to show and tell in the final fair of what their organ system represented and how it connected to the others. She also gave them a rubric. So all the bases were covered.

The first thing they did was they designed the classroom as a human body. So there [are] the students trying to figure out what the classroom would actually look like. Now during this whole time she has video cameras going, students are making videos of themselves, and looking at that afterwards. They're discussing their plans, they're analysing, there's a huge amount of assessment going on all of the time; assessment for learning. Then they present their plans on their own internet radio, prepare the classroom. Then they start preparing their organ systems, working it out, and then one thing they did to make their—they made a big duct tape in the middle of the class; the whole classroom was full of duct tape leading to the different organ systems. Finally, they had people come in to see it. You can see the YouTube version of this, it's interesting enough but poor Aviva had a cold that day so you get lots of sniffles on it. I didn't think you'd want to really hear that but here's a little snippet of what went on.

Child 1 — Okay, hello and welcome to the organ system web series episode one. Today we will be doing the nervous system.

Child 2 — We are building a model of the nervous system in our class starting Monday. Be sure to watch the bones clip showing the finished model.

Child 1 — Okay, so here's our plan.

Female — How this works.

Child 3 — So the water comes down this tube which is supposed to be the oesophagus, and then it goes into the water bottle which is the stomach. It comes down in the small intestine, and then right here, we have to pump up the water to the pancreas and then we need to pump this again so it can go up to the liver. Then it goes down in the large intestine which we haven't built yet over the liver, and then it comes out the anus.

Child 4 — This is our respiratory system. As you can see it's basically the lungs right here. As you can see, what we used was simply a cup, duct tape, a clear tube, so you can see, and two giant big balloons and a t-tube to connect them.

Child 5 — With also rubber bands to hold the lid on.

Child 4

That shouldn't be too hard to find. So as you can see, when she breathes in through the cup, then it comes through there and it fills up the air sacs, and when she breathes out the air sacs get smaller, see?

Child 6

What we did is put the lungs—well we did the circulatory system.

Child 7

What happens is the lungs, they put oxygen, and the food is where you get your nutrients and it all goes into…

Professor Susan Drake

Professor of Education, Brock University, Ontario, Canada

I think you can't hear him that well but all of them did these fantastic systems that were working. They wrote about them and she posted this all day long, and her principal and other teachers would tweet back with her and give her, the teacher, feedback on what she was doing. So she's an incredible teacher who just documents everything, which is kind of a scary thing to do and here I am presenting it to you in Australia which she and her kids are thrilled at.

So last kind, trans-disciplinary. Now this one starts with the real world issue. It doesn't start with any disciplines but because of the world we live in, standards based, the disciplines show up eventually. The school I'm going to give you is Alpha, it's in Vermont. I heard about this school a long time ago and I asked them if they'd let me write about them and they said, only if you will come and see us. So I got a friend and we drove all the way to Vermont and had a fascinating three or four days watching this school in operation. So there it is, it's a team of students, a school within a school, there are about 60 students. When we were there—I was there before 2004 book so that was over a decade ago—the students chose to go to this school, but now it's kind of a lottery, anybody in the whole school; there's different programs going on in the school and whoever gets in it, gets in it. So that's an interesting change because they used to think only a certain kind of school kid could do this.

Multi-age, all the time, although the Grade 8s mentor the Grade 6s a lot. It's based on the work of John [Doohey] and James [Bean]. It begins with two questions; what are your interests as a person and what do you think's important in the world? So those are the two questions for kids to think about. Not any subject areas, those two questions. What they're basing them on is Vermont vital results. That's their KDB umbrella. You can see them, they're into twenty-first century skills but there's a lot of ‘be’ in there too; independent functioning, personal development. They've re-thought them out for the success criteria. Here's what it looks like in terms of ‘I’. So I continue, I assess my own learning, I make healthy choices, et cetera, et cetera. Same with communication; I do these different things to communicate.

What these students actually do, and I was there to witness this, for the first two months of the year, they study the curriculum. All the things that I suggest you do, they actually study the curriculum. Now they study the common core curriculum and the Vermont curriculum and they see, after two months, what it is they are required to know. At the same time, they learn how to ask good questions and they brainstorm—spend a great deal of time looking at what are my personal questions and what are the questions we have about the

larger world. They put that all together and come up with what they're going to learn for the rest of the year.

I happened to be there at that time, it was quite extraordinary to watch this. These are kids in Grade 6 to Grade 8. So the themes that they came up with, year 2013, 2014, you can see—all of this is right from their web pages so you can go back and look at it if you want to—physical science, conflict and change, chemistry, changing life in the United States. Well some of those sound like subject areas but somehow those emerged out of their questions and every year the themes are a little bit different. Then the students actually determine what activities they're going to do and what the assessments are going to be. They have three teachers and the teachers kind of are responsible for about 20 students each, but they work in a very integrated manner. These students have done very well in the large-scale testing that they have in Vermont, so there's no problem there.

I interviewed both the parents and the students and the teachers and everybody was in love with the whole system. That just tells you about the curriculum and the assessment. There's a whole lot of time for assessment and every week, each kid sets their weekly goals. They discuss it with another student. The younger is usually with the older and each week they try to meet those—always against the Vermont vital results which you saw are generic for twenty-first century. Vermont created those and, as I was working with them back then in the mid-90s and they're the only jurisdiction, I know that's kept them. They're exactly the same, so they've worked for them and they're nice. They're broad based and they really work for these students as well.

They have a lot of activities that, they just go with the program. They have a camping trip and a quilt trip, not a quilt trip. They make a quilt. There [are] a number of things, these stayed the same—I was really surprised that now this is 2014, it's very similar, and the same teachers even—to when I was there in probably 2003. So there [are] the Alpha strengths—what I wrote about in 2004—but here's another one that just came out. Thirty-three years this program has been going on, so something is working.

I'm just going to do one quick, one more minute; this is a high school, Todd [Bomer], he put together four classes. Four different classes, all day classes, for one semester, and their theme was social change, and what they had to do, the student's big culminating activity was, they had to create an activist campaign for something. They did; they put together all of those different subjects, spent all day together. Kids saw it as this, this is from a kid—authentic, self-directed, interdisciplinary—and there's a project for them at work. Todd did this for two years, and in September he's starting a new one. The theme this time's going to be food. Again, lots of, just lots of assessment that went with it to make sure that it was authentic, lots of checking in—I planned this with him, lots of checking and connecting back to the KDB umbrella.

There I know that I am two minutes over time according to my watch so I'm going to thank you so much for being an attentive audience, staying with me, I know we dragged through all that theory but thank you so

much because it's got to be both the theory and practice. Thank you.

Session chair

Kathryn Tully

Acting Deputy Director, Curriculum Services Division, Queensland Studies Authority

Just like to, on behalf of all of us here today, thank Susan for her engaging presentation this morning. I'm sure you'll agree that she's provided a great start to the conference and a very clear rationale for all of us to play our own part in the emerging new story. I think it's comforting for us to know that many of the challenges that we're responding to and meeting in Queensland are also shared internationally, so in Canada and also those other locations that Susan has been working.

For me, the really rich part of Susan's work is her ability to bring theory into alignment with practice, and the detail that she goes into in terms of creating stories and theories from her own research into teacher practice, and I think as a result of that that many of us will have taken away great messages from today and lots of new ideas that we can embed into the Australian Curriculum as well.

After hearing your presentation today, Susan, I think we can be very pleased that your mother at one time said, go teach. I think the education profession is very fortunate to have you as part of that. So thank you very much for your presentation today. In the words of the little boy in the video, I think you've educated our imaginations as well. Would you please join with me in thanking Susan for her presentation.