Kim Hill Interview of Graham Nuttall

Preamble: Forty years of research on teaching has led Professor Graham Nuttall to ritual and myth, much of which remains intact even though the education system seems perpetually in upheaval and change. Professor Nuttall's career has been dedicated to finding out how teaching shapes learning or what makes a good teacher. It's a hard question to answer because it gets tangled up with other issues such as classroom management. Teaching, Professor Nuttall, has come to believe, is not actually about learning at all and teachers hardly ever know what's going on with their students. Differences in achievement have little to do with ability. The emphasis put on background and home culture is a symptom of the failure of the system, not a symptom of its sensitivity. . If teachers managed learning as effectively as they managed behaviour, background and culture, he says, would make no difference.
… I asked him if he was saying that the education system was a fraud.

Nuttall: Yes, I'm not sure that 'fraud' is quite the right word because it implies intention on the part of those involved. But the more we've got into detail of what actually happens to kids in the classrooms, the more we've come to understand that teachers know very little about student learning and then, when you start looking at how the system itself works, there's a lot of talk about learning but actual evidence of learning is rarely got by anybody.

Hill: One of the interesting things you looked at by the process of video camera and miking up students is how much is going on in the classroom that is absolutely nothing to do with the teacher and how little the teacher impacts on the average student even though the teacher thinks he or she is doing a very good job

Nuttall: Right

Hill: What do you do with that information, though?

Nuttall: Well, I hope … we'd be able to get teachers to understand a) what causes learning in students and b) start paying attention to those experiences that are critical for student learning. At the moment ... almost all the focus is on the management of classrooms. I use the analogy with an orchestra. It's like a relatively amateurish listener like myself listening to an orchestra. You get impressed with the sound as a whole. To actually identify individual players and see how it is they are contributing to the whole is extraordinarily difficult.

Hill: … one of the problems of teaching is that you've got 35 kids.

Nuttall: Yes

Hill: How is it possible to identify the individual needs?

Nuttall: You've got to build it into your work because nobody's really paying attention to it. Everybody thinks that you need a busy, active classroom and you've got to be moving through the curriculum going from one subject to another. There isn't really enough time for the teacher to find out where the kids are coming from and where they going to. They have to keep just moving on. And, unfortunately, teachers are using now, under pressure from ERO, a lot of short paper and pencil tests because this is what they're required to have in their books; lots of numbers representing, or showing, that they can evaluate how much children are learning. But the fact is that those tests don't tell kids how much they are learning.

Hill: Why not? What is your reason for saying this?

Nuttall: There are a couple of things. One is that they never look at where the kids come from, so that when you apply achievement tests you're always getting the same kids at the top and the same kids at the bottom and you're never seeing how much they've actually learned. In fact, we find out that a substantial amount of what teachers teach, or attempt to teach, is already known by a significant number of kids in the class.

Hill: As much as 50%, you say.

Nuttall: At least. Sometimes it's more. It depends on the topic. So what they're getting in the achievement tests could very well be what the kids already know if they'd given them beforehand.

Hill: Although if certain kids already know things and certain kids don't, then doesn't that mean that some kids have achieved more than others. Why isn't that a valid measurement of how the system has dealt with them?

Nuttall: Then you go back and say where are the kids getting this stuff from? And because of this hidden world of the classroom, then a great deal of what is critical to the kids learning actually comes from their own activities independent of the teacher. And those kids that are most in tune with the classroom, culturally most onside with the ways in which schools work are the ones who are best able to teach themselves. And the other kids, who for various cultural or background reasons, do exactly what the teacher wants them to do but don't get engaged in these self-generated learning activities, are simply getting further and further behind.

Hill: Were you able to identify which children, which students were likely not to thrive in the classroom? And exactly why…

Nuttall: We did identify them. Ah, in fact, there are some remarkable, very sad cases that we came across; children who had opted out of the system entirely but managed to convince the teacher that they were doing perfectly well, thank you very much.

Hill: Really.

Nuttall: Yeah, one little boy, a ten year old, eleven year old, decided he wanted to become a truck driver. He could see absolutely no point in school whatsoever at that point. And he would sit with a book open or a resource book or something of this kind and give the appearance of reading things which he wasn't. Every now and then he'd get up from his desk and go over to the teacher and complain that others were interrupting him and preventing him from getting on with his work.

Hill: So he had a good PR thing going on.

Nuttall: He really knew what he was doing… Whenever the teacher tried to get in there and find out what was going on he'd lost his work or he'd left it at home or he was sorry he hadn't finished it but he'd finish it for homework which he never did. And when we were observing him, because we kept a close eye on kids, every now and then he'd leave the classroom and disappear. We had him wearing a, little microphone. One day I spent about ten minutes trying to find him. He was just one of these people who could disappear into the woodwork and not be noticed. He learned nothing. Every day as we'd come into the classroom and start observing and setting the stuff up we'd have little bets with ourselves over whether there was any possibility of him learning anything that day and there never was. So, there are kids who get by like that.

Other sad cases – there was a girl who everybody in the class, the teacher and others thought was intellectually handicapped or at least very limited. When you watched closely what was going on, anybody walking passed her desk would almost always knock stuff off it. The teacher who was convinced that she didn't have the ability would give her special work of a much lower nature than the others. And they assigned her to the rubbish bin. It was very sad. But when we looked at the relationship between the experiences she was getting and what she was learning, she was learning as well as anybody else in the class. But the way the culture of that classroom had evolved, she was assigned this role. And she was patient, more or less cheerful, accepted her lot in life but she was just being abused in the simple sense of knocking her stuff on the floor.

Hill: Are you saying that because of the culture of the average classroom it almost requires a certain number of children to be downgraded to low achievers?

Nuttall: I don't think it works quite like that. I think that the teachers will do their best to motivate these children, to get them involved and engaged in activities that the teacher has decided are appropriate to their abilities.

Hill: And this is one of the things you say learning requires that they have to be engaged and motivated?

Nuttall: But that's as far as the teachers go. The teachers don't go that bit further which is to find out whether they are understanding what's going on and whether they're actually learning from it or not. I mean, one of the things we discovered, I guess, is that the children have got to come across the same material three or four times, sometimes as a whole, sometimes in bits ....

Hill: To reinforce it you mean.

Nuttall: Well, something happens in their working memories. The closer we get to it through listening to the kids talking to themselves, chattering with each other and so on, is that there's some kind of working memory in which new experiences are interpreted by the kids and in that process of interpretation they connect to what they already know, they evaluate the consistencies with what they already know, they reject things which don't make sense to them and so on. There's a whole lot of work going on. And it seems that in the average kind of classroom the kids need to keep coming back to the same concept or idea to allow that sort of processing to really work its way and embed itself into … and then it changes their beliefs and so on.
Now, a teacher never knows whether the children have had a reasonable sequence of experiences. What the teacher's doing is setting up activities in which the child will have encountered a new idea once, or so, and because the kids look interested or motivated or so on, the teacher moves on to other things, never knowing whether or not the children's minds have actually processed the ideas enough times or had enough time to process them effectively.

Hill: When you started miking the kids up and putting the video cameras up, how is it that you didn't alter their behaviour in so doing? A standard research problem.

Nuttall: It's a major research problem. We worked very hard on that. We'd set all this up a reasonable time beforehand until the kids were familiar with it. We did a lot of talking with the kids about why we were here, what we were here for, we sent little booklets to their homes, discussed it with the teacher and so on. And then, once we got it going, we would show the kids themselves on a little monitoring screen so they'd get an idea of what we were doing. You get initial reactions of are we going to be on the Kim Hill Show on Saturday and that kind of thing. They had no idea of what it was about. But gradually, over weeks they

would settle into it... We worked with 9, 10,11, 12 year olds. I think if we'd tried doing it with 14, 15 year olds we probably never would have succeeded. Although Adrienne did one high school class. It just becomes part of life. And then they would revert back to noticing if they were bored out of their minds and they were about to poke their neighbour with a ruler and remembering they have a mike on – "Hi, Mom.. Here's reporting into you"

Hill: So what you saw was that teachers are taught to teach in a certain way. They need to assume certain things because they haven't got the time to explore whether those things are actually

Nuttall: In the way the system is run they don't have the time. They could make the time. It's not a complicated thing.

Hill: I was wondering if a teacher said to you, "Yeah! Exactly! We all know this. We all know we are not going to access every child and that there are some children who we're just not going to be able to teach. Do they not say that to you?

Nuttall: Not with the kind of seriousness or an understanding of the implication of it. Yeah, they know there are kids who they can't get to. But what I'm saying on the basis of this research is that they're actually not getting to any of them when it comes to the point. Most kids who are learning are mostly doing so through their own activities, their own way of managing their involvement. Sometimes it just so happens that if the kids read up something or get something on the internet and they have to write a report about it and the teacher has a discussion about it they will in fact get the frequency of interactions with the material to actually learn. But, in a sense, that's almost accidental. That's not what the teachers are on about. They don't know that that's what they ought to be doing. What they're doing is managing a busy, active classroom of interested kids and at that point the assumption that we all have is that of course the kids are learning.

Most people in our society believe that they can teach. An interesting survey of beginning student teachers is they believe that when they come into the college of education they can teach, they're fine, they're going to be great teachers. You learn this because you're in schools for ten years. Nobody sees it as a problem. All they see as a problem is classroom management; is how to get those eyes looking bright, to get those hands going up, all that stuff that parents love to see if they're coming into the classroom, or the principal comes in … this is wonderful stuff. But none of them know if the learning's taking place or not.

Hill: The depressing thing about all this is the indication of how much time is being wasted both by children and by teachers. How could it be done better? Realistically speaking? Do you know?

Nuttall: There are a number of research programmes – one I know of in the US and one in Britain – where they're essentially unpacking the curriculum and saying forget this rush from one thing to another. Select the things that you really think are very important in this area, in Science, Social Studies, what have you, and then spend more time on them. Begin by sitting down with some of the kids individually and asking them about the kind of key concepts and things, getting some sense of their understandings, where they're coming from, going through the activities that will have their eyes lit up and terribly interested. Take time out again to sit down with the kids and find out what they actually got out of that and how many have actually misunderstood it. Misunderstanding's the great threat to all these areas.

We actually do it in reading quite well. One of the standard practices in beginning reading is what they call running records where the teacher sits down with an individual child with a text they think the child will manage reasonably well, gets them to read it, and keeps a running record of when the child hesitates, how the child deals with an unknown word and writes out a

kind of case study of what that child's doing and how that child's progressing and then can base their teaching on that. That's only in reading. If we did that in other areas ... Another thing that sort of emerges from all this is that kids get through primary school and then into secondary school and they do Maths at least once a day, they do Science almost once a day … the fact they know nothing by the Fourth Form actually nobody pays any attention to. When we have a GE debate in the community and we realize that the community at large has had thousands of hours of Science teaching (but) nobody expects that they should know about that sort of stuff. We actually don't care. There's a lot of talk about literacy and I think there are interesting and important things going on in literacy, but all these other areas like Technology and Science and Social Studies and Maths... Nobody actually cares whether kids go all the way through and come out knowing nothing or saying 'I hate Maths' or my head spins when anybody puts numbers up. Or in Social Studies, what do you know? Well if you don't know anything, what the hell! Who cares?

Hill: So do we, does any country have the resources within the public education system to do it as you would say properly?

Nuttall: I think it's a case of unpacking. If you think of the current system where kids are learning haphazardly of nothing at all in some cases, you're better to stop and say look here's a key idea. Take science; one of the ones we observed was two teachers working on the notion of what is light. How does light work How do colours work? Where do they come from? Take something basic like that.

Hill: So instead of doing lots and lots of bits of things you deal with one big thing and make sure they understand all the ramifications of it and things spark off from that.

Nuttall; When you move onto something else you can be pretty sure these kids understand that stuff.

Hill: Are we worse off than other countries, do you think?

Nuttall: No, I don't think it's any different. My American friends, English friends and so on would agree that the research we have done would apply equally well there.

Hill: So you spent 40 years working on this.

Nuttall: Well gradually leading up to it. Bit by bit by bit. Being as mislead myself as everybody else was. In this whole time, it's only recently dawned on me that this applies to university education that I've been involved in. University education is a set of rituals. The lecture is a medieval practice. And I see the minister is going to put money aside for rewarding quality teaching. But you look through the criteria they using; nothing to do with student learning. They talk about some proxies for student learning.

Hill: Such as?

Nuttall The clarity of the lecture. But I don't think anybody has sat down and... taken some individual student and found out how they actually learn some key concept or idea.

Hill: So when you talk to children or even adults ... People often say I had a fantastic teacher. Does that mean that teacher is fantastic? Is that the best kind of reference a teacher can get? Is that meaningful?

Nuttall: I think it's meaningful within our cultural expectations of what good teachers are about; the teacher had a sense of humour, explained things clearly to us, he really cared about me, and a whole lot of things like that which motivates kids and makes them feel good. And

those are the kinds of teachers which they will remember. The older generation will remember teachers who were pretty tough on them but made them work hard. But things like working hard and explaining things clearly and so on are all surface features. You could have in fact learned very little from these wonderful teachers.

Hill: Is that how you feel? Do you feel that you learned very little at school …?

Nuttall: I learned a hell of a lot really, in one way or another. But by accident. By a whole lot of other things going on.

Hill: That would imply that your family life … the richness of the dialogue going on with your peers and your family is the most important thing.

Nuttall: It's very powerful which produces all these correlations between cultural background and so on and school achievement. The good schools get the good kids and that whole thing. But you'd think you'd have a profession that ought to know better about how to do it.

Hill: So do you think that your research and your findings have had any impact or will have any impact?

Nuttall: Only slowly.

Hill: Because there's resistance as soon as you talk about unpacking the curriculum, people are just going to go, "Oh no!"

Nuttall: It's more than just resistance really. It's difficult for people to understand what I'm on about.

Hill: It seems quite simple really. Kids aren't learning as a consequence of the teaching.

Nuttall: But this is heavily embedded into our experiences that teachers know what they're doing. They must know what they're doing. We have these busy active classrooms. The kids bring home beautiful things for their parents to see. All of the system's running smoothly. Why would some idiot professor say that it's a load of codswallop?

Hill: Have the changes to the NCEA system – those would seem to be going in exactly the wrong direction by your analysis – by splitting things up, by increasing the paperwork, by making things into more discrete parts

Nuttall: Yes, I think so. I think it's just a kind of bureaucratic conception that you can take knowledge and beliefs and you can divide them up into little wee pieces and you can test each piece independently of the others. If you go back to fundamental notions like the nature of life and light and all the important science stuff, people's beliefs are all tightly intertwined with each other. You can't cut off a little bit, or you can if you like, you can say what is chlorophyll and the person might know that. But that may say very little of their real understanding of the basic issues and basic concepts. We had very interesting cases in our studies of children who could learn definitions very well but had no understanding of what on earth that means or how it would apply in real life. The system can produce that kind of rote learning stuff. Actually that's not a problem. What I'm talking about is genuine beliefs and understandings and being able to use what you learned in school in your life.

Hill: Being able to integrate it into yourself rather than forgetting about it as you pass through it

Nuttall: Which is what a lot of university is about.

Hill: So your dream, I imagine, would be to set up a school and do what you think ought to be done to prove how it could be done better

Nuttall: I would love to have been able to do that. To have a school in which you could unpack the curriculum and the teachers could spend more time understanding the progress of individual kids, working with their understandings and misunderstandings, building up their fundamental understanding of life and all that matters in it

Hill: Do you feel that you've been a lone voice you and Adrienne Alton-Lee?

Nuttall: Yes. Mostly because our research activities have gone out of the mainstream. I have famous American friends working in educational research who say that's absolutely fascinating but hell, we haven't got the time. Because it's extraordinarily time-consuming way of going about the research. They have pressures of publication and so on. I was lucky. I was appointed a professor in my mid thirties which meant that I could forget about promotions and all that sort of stuff. I could really get on with doing what I thought was worth doing rather than worrying about publications and cutting corners in research in order to get ahead

Hill: So, how do you feel now? Do you feel it was it all worth doing?

Nuttall: Personally, I am, yes. I think I have an understanding of data and so on that explains a hell of a lot.

Hill: But if other people don't take it and use it, is it worthwhile doing?

Nuttall: That's the struggle. I've given a lot of talks to teachers on and off over the years; a lot of them before I developed these kinds of insights, I think. But that's ephemeral stuff. I've done most of my publishing in Britain and the States because what I wanted to do was get into the mainstream of the famous people because then it gets into the text books that all the students have to buy. No matter what you say, face to face, if it's in the textbooks then it's going to be believed on a large scale. And that's been a struggle but it's starting to emerge.

Hill: You're not well. You have as you were telling me earlier acute myloid leukemia… Tell me about the protective isolation that you had to go through.

Nuttall: It was the worse experience of my life, I guess. You get subjected to a chemotherapy regime which virtually kills you. And you have to stay in isolation; filter the air and people wear masks and things. That was a very difficult time indeed.

Hill: And you were there for how long?

Nuttall: Three and a half, four months or so. With some breaks in between.
There were three lots of chemotherapy. They kind of pump it up and then relax it a bit and your body tries to recover and then they give you another dose.

Hill: Good practice for being dome kind of hostage I imagine.

Nuttall: Yes, I imagine. I began to wonder why I wanted to live at all in those circumstances but I think it's a common experience in those...

Hill: Did you come out with an answer?

Nuttall: I came out with an answer that I don't have to change the world anymore. Which I was fairly convinced that that was my life was about up to that point. It was partly .. I retired just at that point.

Hill: As a consequence of the illness?

Nuttall: No it was time to go. Actually, one of the major reasons for going was to get on with finishing off the research projects. University life is a lot of administration, a lot of teaching, a lot of marking and all that was getting in the way and I needed to get on with the research and that's really why .. I was getting to that age anyway ...

Hill: All that teaching and marking it's really ironic given the subject of your research

Nuttall: Absolutely. Mea culpa in this situation because I was so caught up in the way universities run and university culture. It took me a long time to understand that a great deal of all this was just spinning wheels. Okay, so the kids were sitting down the night before the exam and learning the stuff off by heart... so they were getting through. But all this lecturing and stuff that goes on is just a kind of self display by academics. And nobody knows... well, there have been studies that show that students remember very little of lectures. And, in fact, they remember less of the content of the more exciting lectures than they do of the more mundane ones

Hill: It's all counter intuitive, isn't it?

Nuttall: Well, first of all what they've got to do in lectures is to write notes which they can sell to their friends or whatever and then have the week before the exam and learn them off. They hear an exciting lecturer and they come out of the lecture theatre with no notes because they've been absorbed in what the lecturer has been talking about. Okay, for a week or so they'll remember what it was about but a month or two later they won't have a clue what it was about. I sat in on some lectures at one stage ... because I was teaching an integrated course and wanted to find out what the other lecturers were doing in the course and the one before me was taking a postmodern analysis of the media. And I was watching what the students were writing and they were writing nonsense. They couldn't understand a word of … the big long words .. and so they'd make up whatever they thought those words were. And I thought this is sad. These guys are going to go off and try and learn this stuff off by heart. And when the lecturer reads the exam papers they're going to be filled with all sorts of curious nonsense and say, oh, you dumb students. This is the other thing about all this research; the whole notion of ability, I think, has been created to explain why some kids don't learn while others do when the problem's really with the teaching and not with the kids. But it becomes a self fulfilling prophecy.

Hill: So how do you put it? The differences in academic ability are more likely to be the product of differences in classroom experiences than the other way round

Nuttall: Our research points in that direction and there are other bits of research around in other places that point in that direction as well. If you've got a classroom where the kids are all interested and involved in all these activities that the teacher has set up and some of the kids do very well and some of the kids learn almost nothing, then how can you explain it? Oh, you say, there must be something wrong with the kids or home backgrounds. Whereas the fact that some of them learn more is got to do with their own self-generated learning activities

Hill: But that surely relates back to their home backgrounds

Nuttall: Yes. It's the cultural match, I think between the classroom … what we see is particularly with young girls who are dedicated to doing everything the teacher says – that's their life – and you get boys who are physical and want to do something entirely different. And in that context, of course, you get these gender differences. Girls are learning more than boys. Not that their brains are different or that they actually learn differently. It's just that

they engage in the classroom activities in quite different ways. And the same applies to all this testing we do, particularly these big international studies. Unless it's powerful and personally meaningful for kids they're not going to answer all those complicated questions on that test. I've seen some wonderful doodles on international tests booklets... Of course the whole system believes that somehow or other these tests give you an insight into what's actually... how much the kids know and they don't. I don't think it does. I think most of the time it's a function of how well worked up they were or how much they believed that this was a test that was worth doing.

Hill: You seem philosophical about the fact that you've been researching away at this and the system is still grinding on very much the same way it always has.

Nuttall: It's the power of culture How many years have kids been taught in classrooms and every child goes through ten years or so of schooling now. One's just tapping at the fringes with this stuff. I think it means that things like ERO and the Qualifications Authority and all these systems we have in place are actually nonsense as a consequence of this research. But nobody's going to pay much attention to me saying that because they're so well embedded in the system.

Hill: You've had children?

Nuttall: Yes. Four grown up children now.

Hill: How did you find their educational experiences? Was it a frustrating thing for you to watch then go through...

Nuttall: Nervewraking. And frustrating. But also aware that a professor of education doesn't go charging into a classroom because all sorts of prejudices and things arise so I kept in the background. You work with the kids at home as best you can

Hill: And when you talk to them as I presume you do about your research do they agree with you when they think back to their own experiences?

Nuttall: I think so. I've only really talked to one of them seriously in a depth conversation. She does.

Hill: So despite the fact that they learnt very little as a consequence of the teacher did they do all right in the end?

Nuttall: They've done all right by the time they got into their thirties. I wouldn't necessarily say that they had good school marks. At least two or three of them were more inclined not to believe in the system, not want to copy stuff out and learn stuff off by heart. They wanted to know the reasons for things.

Hill: But that's good, isn't it?

Nuttall: Well, it's not for getting through in a high school system.

Hill: That's why you're such a subversive because you're giving young people licence to fail at school as long as they're having rich experiences that will stand them in good stead elsewhere

Nuttall: In that sense, yes, I guess that's right. But let me tell you a couple of stories. At one stage I was working with a leading person in science education who was very interested in the final year at high school curriculum in chemistry. And one thing I encouraged her to do was sit with her students and talk to them about what was their understanding of what she thought

were key concepts of bonding and various other things and she sat with this group from a privileged, private school and started asking questions .. and realized that they were becoming more and more agitated by this whole process and she said, “What’s wrong? What’s going on here?” And one of them said, “Look, all you’re doing in embarrassing us. We’re going to do well in the exams. It really isn’t relevant whether we understand any of this stuff or not. Let’s just leave it at that.” Which I was recounting the story to a friend of mine who had one daughter in the final year of high school and a daughter at university and she overheard this conversation between the two of them. The one at high school was saying to the older one, “I really don’t understand this stuff. Can you help explain it.” And the older one said, “Forget about that. You just learn it. You’ll get all the marks you need.” So the system is really about learning stuff off by heart.

Hill: It’s about bluff.

Nuttall: It’s about bluff