

HOW DO I GET STARTED?

Richard Messina, Lab School V.P., OISE:

A great way to begin is by providing your class with an experience. I used to say start with children's questions, but we have to be real. If you walk into a classroom and say, today we're studying electricity, what are your questions? Chances are children haven't really been thinking about electricity for very long. So giving them an opportunity to play with materials, maybe going on a field trip, maybe reading something, creating a controversy, that often seems to work. And so that students start to generate some questions and some ideas. And I would also say that the big questions don't necessarily arise on day one. You're trusting that something will come up. Children are acquiring information, they're sharing information, they're starting to ask questions, and then we can start to look at what are some of the more promising questions, as well, something we want to pursue as a group. I would say that as we, as a class, I have these experiences, children acquire new information that answers some of their earlier questions, but they start to realize that new information then generates new questions. And they are part of this process. We end units often with a sense of satisfaction knowing we've accomplished a lot, but also knowing that there was much that we didn't get to. Of course, as a teacher, I would ensure that we covered the big ideas of the curriculum, but I like the sense of children leaving wanting a little more. Say, you know, we didn't get to those questions, they were either way beyond our understanding, or way beyond our access to resources, or we ran out of time. And so that children have the sense that there's more to learn rather than this misconception that we've done it all, we've learned it, and in fact, we did very well on the test, which is all the proof we need, but rather, the more we learn, the more there is to learn. So advice to teachers is, again, creating these opportunities, environments, where children can be thinking, wondering, and we are recording for them, or inviting them to record on Knowledge Forum, what

they're thinking so that we can use that information to design subsequent environments and experiences for them.

MISCONCEPTIONS AND STICKINESS

Richard Messina, Lab School V.P., OISE: We often ignore what children already know because we feel, as teachers, that our job is to simply give them information that they need to know. So whether they know it or not beforehand is almost irrelevant, and may be an inconvenience. But what we do when we fail to recognize what children come to us with is, we're building knowledge without that foundation. Those preconceived ideas, sometimes called misconceptions, are incredibly sticky. And what I mean by that is, they were created through life experiences, through a lot of thought for that child, they are intuitive. And so we're trying to teach them often counterintuitive explanations of the world, but we're not having them relate to those misconceptions. So why should they believe those counterintuitive things when they have had many life experiences that have proven that birds fly in this way, or you know, the seasons are created because of this. We as teachers need to begin with those misconceptions. Create a safe environment where students can tell us what they're thinking right now, not judge it, but archive them, and so that students can go back and say, oh my goodness, I used to think this and now my understandings have changed because of the learning experiences I've had. This helps them understand that all ideas are improvable. Their original ideas, they were very valuable. They can be very creative and help us understand what a child is thinking, and actually, sometimes we create the misconceptions for students when we simplify things. You know, for example, when we show the orbit of the earth around a sun in a 2-D picture, that often teaches something that we don't want children to learn. It creates the misconception that there are times when the earth is further away from the sun. So a child, who's had an experience with a source of heat, to like a light bulb, for example, or a fire, knows the closer I get, the warmer it feels, therefore, during the months of summer and spring, I must be-, the earth must be closer to the sun, and this drawing seems

to indicate that. So we have to be very careful, those misconceptions stick with children unless we create this environment where they can tell us about them, and we can then create experiences where that will change their ideas.

PERVASIVENESS OF KNOWLEDGE

Richard Messina, Lab School V.P., OISE: One of the principles of knowledge building is how pervasive knowledge is. That as you go deeply into an area, you find it's connected with other aspects of the curriculum. We as educators have compartmentalized the curriculum in order to deliver it, but not because that's how learning really takes place. But I'm cautious when I say this, that teachers hearing this will say, well, oh my goodness, you mean I'm throwing everything out and it's sort of no holds barred, you know, I need some structure. And what I tell those teachers is, sort of a one percent rule. Change one percent of your practice a day. Really think about, how can I give more opportunity to students in my class to have ownership in what we're learning? Have them assess what needs to happen, understand that all ideas are improvable. And in my case, I started in the area of the curriculum of science, and it just was so conducive to inquiry and knowledge building. And I realized at some point that, well, why was I teaching math in still a very traditional way instead of making children understand they were mathematicians? It was about solving this problem and very-, looking at all the different ways that we could solve that problem, what resources we needed, what information was superfluous, what information was necessary. And then comparing, contrasting, deciding on what might be the best method to do this for the different individuals. And by the time I left the classroom, it was spelling. Then I thought, well, you know, nothing seems to be working. Can there be sort of a knowledge building way, where children can identify in this crazy language called English, that really follows very-, has so many rule breaking words, can we come up with some theories about how to spell most words that share a commonality? What are some of the conventions we can discover as a community that will help us in the future? These are all

really authentic goals for students. They want to find this information out.

MINDS ON EXPERIENCES

Richard Messina, Lab School V.P., OISE: There's a big movement out there that children learn by doing. We know that they learn sort of in a hand on experience, and that rather than simply learning from textbooks. That's a great idea and it's absolutely true, but it's not enough. What we need is for students to have hands on experiences, but minds on experiences. Not just do activities for the sake of the activity, but know why they're doing that activity. What is this activity or this task going to help me understand? That changes, also, who does the activity. Rather than the teacher uniformly assigning everyone to be making the periscope in the study of light in grade four, maybe it's just the group of students who have been interested in understanding how mirrors reflect light, and changing the angle of that-, of the direction of light. And that that group of students are using that task, or that creation to help their understanding, and then they will share that understanding with the rest of the group. If everyone is doing the same task, then the discourse is just between the student and the teacher, to ensure that I know that you've understood this. If it's about students deciding what they need to do in order to help their own individual interest and understanding, then there's a reason why they'll share it with the rest of the community. When the lenses group is listening to what the vision group has understood, then together then can figure out how eyeglasses can correct our vision. I can give them information on, you know, in books, I can create experiments for them to do, but it's when they understand why they're doing it, they have the need, it's the need before the activity. If they're playing with lenses and flashlights in order to understand how rays of lights are bent, then it's that autonomy that they have that creates the engagement, that also then leads to an understanding in an authentic experience of learning.

SLOW SCHOOLING MOVEMENT

Richard Messina, Lab School V.P., OISE: It's so interesting, the slow food movement has been underway for quite some time now, and people are starting to think about other parts of our lives that need a little bit of slowing down, and schooling would be one of them. In terms of, when we think of school, we often think of a factory model. Trying to get the information out to children as quickly as possible, the same information for every child, so that we can assess. It's all for the convenience of the system, but not really for the convenience of the child. This isn't a system that would foster a love of learning. And John Dewey writes that the aim of education is the continued capacity for education. The slow school movement is slowing things down, choosing parts of the curriculum that we can go deeply into, and savouring that experience. Understanding the process, celebrating the results, and knowing that there's more because we want to be able to do more.

THE GAME OF SCHOOL

Richard Messina, Lab School V.P., OISE: When we think of schooling, we often think of a child trying to guess what's in the teacher's head. Clearly, there's a right answer, the teacher knows it, and my job is to try to figure that out. And then part of that is, after I have that information, is remembering it long enough in order to repeat it back in whatever form of assessment the teacher is giving. These are skills, but really don't serve us for the rest of our lives. We need to change that. We need to create a system where students are involved in true learning, in authentic learning experience. Rather than, you know, developing those skills, we want them to develop skills that they can use for the rest of their lives.

KNOWLEDGE BUILDING AND KNOWLEDGE FORUM

Richard Messina, Lab School V.P., OISE: Often we're asked, can someone do knowledge building without Knowledge Forum? And if the person asking me that questions doesn't have access to Knowledge Forum, then I'm going to say yes. I'm sure that-, you know, my goal is for that person to know that what's important about knowledge building are the 12 principles, that all ideas are improvable, that it's about this community knowledge, the discourse, and that creative teachers will find creative ways to archive children's understanding. But I have to say that using Knowledge Forum changes the playing field. When you have-, you know, I used Post-It notes, for example, when I was worried about, you know, would I have access to technology, and Post-It notes fall off the board, they get lost, you can't duplicate them if you find that they need to go in more than one category. They're difficult to read. And Knowledge Forum allows you to, in an asynchronous way, add or read anything that's online. It allows you to build on and really use graphical tools that are really conducive to the way children see information. But I think most importantly are those embedded tools. It allows you to assess your contribution as an individual, the teacher can assess at any time, and the group as a whole can actually look, using Knowledge Forum, and identify what are we doing as a community? And those are things that are much more difficult not using Knowledge Forum. And so I'm very excited that this technology is becoming more and more readily available in schools, and I think that as teachers use it, they'll discover that the technology is actually designed to help us understand the principles. The fact that you're not submitting a note, or saving a note, but you're contributing a note, that's a subtle difference, maybe, but it means a huge difference, in that you are contributing something, you're at that moment thinking, is this of value to the community? Am I advancing the knowledge by asking this question or

by sharing this information or this theory? The fact that the title section is there for the child to develop after the note has been written. You can't contribute a note without a title. This helps with those 21st Century skills of synthesizing information. A whole class could be studying bees, but if everyone titles his or her note, bees, that wouldn't be very helpful. But if it's about why bees have stripes, or camouflage, or to ward off predators, then children start to understand how they can synthesize information in a way that will invite others to respond to that information.

OPERATING IN DESIGN MODE

Richard Messina, Lab School V.P., OISE: When we think of schools, for example, we often think of them, as Marlene Scardamalia describes, as operating in belief mode. That our job is to get children to believe a certain amount of things, you know, the right answer. And of course, there are correct answers out there that we want children to know in order to continue to develop and understand. But in order to get those, we should be operating in what Marlene calls a design mode, where we are constantly trying to innovate, constantly trying to create and bring knowledge, and use it in order to advance the knowledge of the group. So that's really exciting. When we think of design and school, we think of maybe problem solving, and most particularly in mathematics where you're solving a problem, an authentic, perhaps, situation. But we want to give children an opportunity where they're using, they're building, they're actually creating things in order to test out some theories. They're building an understanding through a discussion that they're having that's been archived and can be used as a resource for the community. That together we are creating. It's a way of making the ideas tangible. Children naturally play with objects, they will categorize them, group them, what we want to do is make knowledge become as tangible as that, so that they can be using it for their own advantage.

DEVELOPING A COLLECTIVE UNDERSTANDING

Richard Messina, Lab School V.P., OISE: So traditional teaching would be the transmission of information. I as the teacher have content you need to know as a student, I'm going to deliver it to you, and your job is to be a passive receiver. Your job is to remember it, hopefully connect it to other learning - that's very difficult actually for students - and repeat it back in order for me to assess that you understand it. What we understand is that that isn't understanding, that's memorization, that's knowing about, but it's not knowing, it's not doing, it's not acting in the discipline. For example, science was taught in a way that-, you know, traditionally is taught as if it's history, it's the work of other people from long ago, much smarter than any one of us in this classroom, and our job is to learn what they have figured out already. But really we should be teaching science as if the people in the room are scientists, and that they have an opportunity to be asking questions, researching their theories, collecting data, and sharing data, and developing new questions. Knowledge building allows students to create that knowledge in the community with the teacher alongside, and of course we know more, we have access to more information and more experiences, but we need to hold back in order for the group itself to identify the goals and collect that information, and be able to develop a collective understanding. That's also, I just want to say, one of the big differences, is that traditionally we were interested in the learning of the individual. Learning being a solitary individual act. In a knowledge building classroom, it's about the community. The community having a responsibility to create a-, sort of collective knowledge, or a community sense of knowledge. So now I'm learning not just for my own sake, absolutely important for me to learn, but I have a responsibility to share what I've learned with the community immediately, because we have this shared purpose.

ASSESSMENT AS LEARNING

Richard Messina, Lab School V.P., OISE: One of the principals of knowledge building is assessment. Transformative, embedded assessment. We don't see assessment as something that happens at the end, that would be assessment of learning. And an absolutely valuable kind of assessment, but not the only kind. We need assessment to be happening on an ongoing basis in order to understand what learning needs to take place, and what learning has taken place. So that's what we mean by transformative, it helps us know what to do next. And it's part of it, it's embedded, it's a regular part of it of the process of knowledge building. The Ministry document called Growing Success talks about three different kinds of assessment. Assessment of, assessment for learning, and assessment as learning. That one is a little bit tricky, because one thinks, well, how could an assessment, a test, be a form of learning? Isn't that sort of the opposite? You know, it can only be one or the other. And knowledge building shows us how that is. We can be looking at a graph, we can be looking at a social matrix, we can be looking at notes online, and assess what-, use that assessment in order to determine what we need to do next. And that really empowers students to understand their role as learners, and their role in the community, and what the community as a whole has to do.

KNOWLEDGE BUILDING AND ASSESSMENT

Richard Messina, Lab School V.P., OISE: Well, we're really thinking about, in terms of knowledge building, how to have children take part in inquiry, and at the same time, be assessing the work that they're doing. How can they operate as a knowledge creating group the way knowledge creating groups operate outside of schools? And part of that is definitely asking questions, finding information, but a very important part that's often neglected is the opportunity for the group to assess what they know in order to determine what they don't know, and what they need to do in order to acquire that information. That traditionally was the job of the teacher. The teacher would determine, I need to bring in this resource, or maybe organize a certain field trip. But now we're giving more and more agency to children, allowing them to determine, what is it that we would benefit from as a group? And children acting as individuals, but students also acting as part of a group.