

WHAT HAPPENS TO STUDENT CURIOSITY?

GLENN WAGNER: When kids start out in school, they're always full of questions; questions, ideas and these questions are quite a natural process for young children to actually exhibit. Something weird happens between when they're really young and when they get into grade school/high school. In other words, why does this happen? Why do students go from this questioning, curiosity about the world to where they get set in their ways where the questions aren't as valued as they used to be. Or, for that matter, they're not given the opportunity to ask these questions. What happens to kids' curiosity when they go from grade school to middle school to high school? Why does this happen? Why do kids go from the process of being really curious down to the point where that curiosity is not valued any more? Somewhere along the way we take the questioning out of the kids and we ask them to listen to our questions as teachers, or questions out of the text book. So I think knowledge building really hits on the idea of getting kids to ask those questions again; to allow them to be curious about things that really interest them. Things that are authentic to their understanding of how the world works.

WHY KNOWLEDGE BUILDING?

GLENN WAGNER: Knowledge building is a very, very natural process. It's something that is done out in the real world, over and over and over again; through collaboration, researching on an idea, collaborating again and continually improving the knowledge. It is just the natural way that that world works outside of the classroom. So if it's good enough for the world outside of the classroom, it should be good enough for the world inside the classroom because that is the kind of work that they're going to be doing, when they get out into the real world. So knowledge building actually works in a way that is quite natural and let me give you an example. If you'd look at a technology such as cell phones, they've gone through a whole bunch of processes where they've gone from the really large, down to the really small. In other words, the whole purpose behind changing the cell phone is through idea improvement. Just make it smaller, more efficient and so forth; all the way down to where it's at its regular size right now. We can go forward; not only just working with technologies, but we can work with ideas. So here you see the idea of working with an idea of gravitation and improved by Albert Einstein, so, you know, it happens all the time. It's just something that is naturally inherent in the world outside of the classroom. Let's just make it part of the world inside of the classroom and get kids used to this process.

WHAT IS THE ROLE OF THE TEACHER IN KNOWLEDGE BUILDING

GLENN WAGNER: When is it a good time to intervene in a knowledge building process? The teacher's not a bystander; the teacher must participate by reading the notes, by being curious about what the kids are working with as well. If, as a teacher, if I ever find that the students are going down the wrong rabbit hole, so to speak, we often have a little conference and ask ourselves, if it's in the area of the science, do you have something that might actually be – have some evidence to support what it is you're saying. So for example, if students ask if – in my field, what happened before the Big Bang, no one knows. So I try to ask them, you know, do you have any evidence for this? And if they say no, then we know that's probably not going to be a really promising question, if you will. So my role in all of this is to make sure that the students sort of stay on track on their basic questions that they posted in knowledge forum so that they're going to be able to go back and if somebody asks them, do you know such and such and such, with respect to the question that was there, do they have the knowledge to be able to go back and answer that? And I think that is my role here, to make sure they don't get too off topic and too off track. I may provide some suggestions of evidence or a suggested readings that might help clarify some things but as a bystander, what I want to do is make sure are they answering the original question. In pushing the thinking, it is a fine line because you don't want to be promoting questions for the kids, actually posting questions. So what I often do is I get – when the student is on a track that I think is really promising, I'll often make a comment that this is a really interesting idea that you're working with. Is there something that you can dig deeper with? And so that's usually the thing that I ask them, dig deeper. Or if they come up with a really interesting idea, to be able to make it go deeper, I ask them about, do you have any experimental evidence? And so that allows them to go off and research some of these ideas that they're coming up with. So that's sort of how I guide the

depth of the knowledge. Not so much as being a participant as what I call taps on the shoulder. Hey, have you thought about this, and hey, would you consider that? Like I said, you have to have the teacher interact with the process. You have to be curious along with the students and as long as you're not telling them which questions to do or what websites to go to, or what authoritative sources that they should look at, then you know what, I think it's a lot of fun. It's fun for the teacher, for sure.

WAGNER'S STAGE 1 – SELECTING A TOPIC

GLENN WAGNER: So how does this process work? Well, in the classroom, you can boil down the idea of knowledge building in five distinct stages. The first one is selecting a topic that is of interest to the teacher and the student, and in this type of topic is one where the teacher looks forward to working with, because the kids really look forward to working with it as well. So usually that's going to be a nice topic where the kids are going to ask a lot of questions. The kids are going to be curious. They're going to want to research more. So that is the first thing that I think a teacher needs to identify in their classroom.

STUDENT: I remember in the beginning, Mr. Wagner gave us a bunch of ques – or a bunch of videos to watch. Yeah, we had no idea what we were going to be going into. We didn't have any clue about the knowledge forum. He didn't even tell us we were going to be coming up with questions at the beginning. It was just, okay, here are these really cool videos to watch. You might as well write some cool information.

STUDENT: Thing that interested you and some questions that you had.

STUDENT: Yeah, whatever each, just had to write like four questions that you found really interesting. Things you wanted to know about and then discussions. Things you thought with the video.

STUDENT: And then we got in – he kind of divided us up into the three groups, the quantum world, the universe and the black holes.

STUDENT: We chose...

STUDENT: Do did – yeah, yea.

STUDENT: By the – how interested we were, in specific videos and then chose what group we wanted to work on.

STUDENT: We got to choose which topic we were to investigate, and we were – we had a huge list of them and so everybody in our group was interested in the same thing. So we're talking about one thing but they're talking about another that we might not have thought about, so it really helps us

to become curious in maybe other aspects of a topic that we're already curious in. So it's definitely helping that way.

STUDENT:

Quantum mechanics isn't really my thing so I think if I had been placed in the quantum mechanics, I think it would've been a bit harder because I wouldn't have enjoyed it much. I wouldn't really know what to be posting. But where I'm doing the black holes, I enjoy doing the research; I enjoy posting on those ones, so I think any questions is a really cool question, right?

STUDENT:

I think it was easier that not much of – not many of us knew much at all about bar codes(ph). So it was easier – there wasn't – it didn't really feel like there was many dumb questions 'cause none of us really knew anything about them.

STUDENT:

At the beginning when we started researching, everything was kind of really exciting because we didn't really know much. But now it's kind of gotten into the nitty-gritty and digging deeper into the knowledge. So it's a little more tasking but at the beginning, everything was like mind blowingly awesome.

WAGNER'S STAGE 2 - FORMULATING A QUESTION

GLENN WAGNER: Stage 2 involves the idea of formulating the questions and ideas that surround this particular topic. So in that regard, the teacher sets up conditions in their classroom, whether its through field trips, guest speakers, video clips. Just general questions that the students might have all right, around what it is that really interests them within that topic. So you formulate a whole series of questions that the kids are now in charge of actually being responsible for answering; as opposed to the questions coming from the teacher or the questions coming from the text book.

STUDENT: First point underneath what is meant by the Big Bang, I just wanted to get a platform started so we could build off of that. So I just got a basic definition and then I added. So there's a scaffold and then I added a question on at the end, so that other people could build off of that and we could just start to grow the conversation.

STUDENT: It helps when people leave questions at the bottom, 'cause then you can skim through kind of their post and then you see a question at the bottom, so it's easier to build on.

STUDENT: Yeah, it is. It gives you an idea what the post is about.

STUDENT: Of where it should go. Where it's following like.

STUDENT: Yeah, progression of information, really. It's all about the questions at the end.

GLENN WAGNER: Those are questions that you guys came up with. It's not ones that I came up with. So what kind of discussion went around these questions that you have right here?

STUDENT: Those questions are kind of made from like – 'cause we had two other pages and then we made this page with these three questions because we kept coming back to these specific ideas and, yeah, they were just things that we really dug deep with and we thought we could come to some form of a conclusion with or some form of an under – a deeper understanding.

GLENN WAGNER: There's nothing more interesting than working with questions that really interest them. So I've been getting a fair bit of support from parents and also other teachers regarding the idea of knowledge building, 'cause they understand the power of the questions and the idea of working with authentic problems as well.

WAGNER'S STAGE 3 – SELECTING PROMISING QUESTIONS

GLENN WAGNER: Stage 3 is the selection of promising questions that the kids are actually going to work with. As a teacher, you're going to find that the kids produce all sorts of questions, low level questions and high level questions. And you have to filter these questions. Some of them are going to be better than others in deepening knowledge. So the idea of a promising question is simply one that is going to lead to much deeper knowledge compared to low-level questions that might be fact based. So an example might be for a fact based question, how old is the universe? It'd be a certain age. But if you ask a question, how do we know how old the universe is, that brings it up to the promising level quite significantly.

You'll notice your questions that when you first started out, they were really small snippets, little bits and pieces. And then as you guys progressed, as you became more knowledgeable, the questions started expanding and the answers start expanding, so the more knowledge that you guys gain, the more opportunity you were able to build on each other's work, to make it more meaningful, compared to what it was at the beginning. So that is a very natural progression, just about any field of endeavour where you're just starting and learning.

STUDENT: The first couple of days were a lot of us just throwing stuff out there, hoping it...

STUDENT: It was really interesting.

STUDENT: Just definitions and....

STUDENT: We had all these really, really simple questions that we were answering. And it was just – and then as it continued, all these questions got, you know, just a bit more complicated and then we got more in depth into the idea of the black holes and everything and I thought it was really interesting when we did it.

STUDENT: Yeah, and now, like now that we're farther in, after hundreds of posts later, I think, we're starting to dig a lot deeper, getting into things a lot more intense information, more specifics and like a lot more mathematical in some ways.

STUDENT: That was the thing at the start, like we started with a lot of broad questions and the easier questions were answered easily but the questions that were harder to answer we started digging deeper and that's how we got so many views. Like we just kept going on the harder questions.

STUDENT: We started out with these really, really broad questions and because of all – like Jenna said, like all the things that we're learning, our questions are going to be a little more specific and more to the point, so I feel like, in a sense that way, that we're learning a lot.

STUDENT: The point is to absorb the information, learn it yourself and then post it for the others to view, right? So it's not just an act of copying, it's actually like an act of learning these scaffolds, that's how it works.

WAGNER'S STAGE 4 – BUILDING KNOWLEDGE ON KNOWLEDGE FORUM

GLENN WAGNER: Stage 4 of the process is building knowledge in knowledge forum. And the idea there is to provide students a working space, where they can share their ideas publicly so that the students can then build upon each other's knowledge as they're progressing with their questions. So in my classroom, one of the big rules about the process of building knowledge is always working a question and leaving a question, so that there's something that's left behind that actually links back to the original big question. So you'll start seeing a whole bunch of build-on's with the kids when they actually start building their knowledge, leaving a question, building some more knowledge and researching and building a question. And that's when you start seeing the deepening of the knowledge that the students are actually producing.

STUDENT: I post something, Sam would post something on that, then Lucas would join it, Steven, and Gabe and Matty and Kaitlin; everybody's just trying to get involved with everything. I post a theory, somebody else posts their theory. Somebody throws in a definition.

STUDENT: I know that you had a theory on the latest one and like I had a question on it, so I had post that question, hoping that he would answer or whether he can answer, based on his information about his theory, so I think I – I don't know, I posted. There's just like that opportunity to collaborate and build on the knowledge and then we can build the theory together and in some ways like some – and then it's really interesting, 'cause then you can have the opportunity to support the theory or you can disagree with the theory. And then you have that argument going on then, and then you can like build on the knowledge of each other and see if you can come to like a middle ground and see where we can come to agreement on a theory. So I thought – I think that's a really interesting way to work with the information.

STUDENT: If someone's confused with something, they'll post it and then there'll be a bunch of people trying to help them out and giving them examples or

analogies so they can try and understand things a little bit better, so we come to everybody having just like a firm knowledge and basis of what we're doing, so nobody's kind of getting left behind or anything, so....

STUDENT: The knowledge forum, it definitely helped because it was a way of posting the theory that I found to begin with, on loop quantum gravity and then from there, I can be like, okay, so here's more information I found. I can build on my question with a nice – with the scaffolds I can then post my own theory and say, okay, this is my take on it. I'm able to do this and I can always go back and edit it.

STUDENT: It's like that whole mind map, it's the quotation wars wisdom, we've flossed the knowledge and where's the knowledge where you've lost an information. It's taking the – all the text books and the informations and boxes and lines upon lines of information and dividing it into what's important; spreading it into a mind map and then making it easy for other people to look at, finding important things and build off of the information we need to know rather than just random information.

STUDENT: The way that we share ideas is definitely helpful and I think it's a really good way to organize everything. It kind of gets everyone's opinion and everyone builds on everything else and it kind of acts as a type of mind map or like a – I forget what it's called, you know what I'm talking about?

STUDENT: A flow chart.

STUDENT: A flow chart, yeah. So it's just a really good way of organizing ideas and I definitely think about it sometimes on how like if we're doing a project it would be a good idea to have a flow chart to organize our base ideas so we can expand and create something with it. So I think it's a really good platform.

STUDENT: A lot of the point of the knowledge for them though is to make sure that you are digging deeper all the time. You're drawing the group in to build on what you're doing, 'cause you don't wanna just be building on your own stuff and just kind of improving your own knowledge. You wanna be working as a group to improve everybody's knowledge, so you want

everybody to feel good. You want everybody to feel a whole and I've seen it happen. I've seen it work.

STUDENT:

When we learn together, like it's not just one person posting right after another. When I post something, then somebody else like Juliana, will post and then Stephanie will post and so we're just – we're not just posting on our own learning, we're posting on each other's learning so that we're learning that way together.

WAGNER'S STAGE 5 – EVALUATING LEARNING IN A KNOWLEDGE BUILDING CLASSROOM

GLENN WAGNER: Stage 5, evaluating a knowledge building environment, this one is a little bit tricky, but it is one that is full of promise. The idea of knowledge building can be somewhat resistant to a pencil and paper testing, because the kids are then in charge of their own learning and where it is that they want to take their knowledge is kind of up to them, within reason. I understand that the students have a curriculum to follow and as a teacher, your job is to make sure that they are following the set parts of that curriculum, so they're getting at that knowledge that you want them to know about. But there's also the part that you want them to be able to investigate; to be able to be curious about areas that might go beyond the curriculum. If I ask you to go about assessing your understanding, what sort of product or artifact would you choose to produce? Like aside from me giving you a bunch of questions and you writing the answer, do you think there's another way that you'd be able to say, hey, Wagner, I really learned something neat here; how would you go about doing that?

STUDENT: I think that it'd be really – it'd be nice to do almost a presentation where we could talk about one specific topic, maybe one that we have a lot of knowledge from, that uses – basically uses a bunch of our topics, so it goes over – it's like one idea but how it connects to all the rest of our ideas and basically just present that to someone else; sort of teach them.

GLENN WAGNER: Okay. Can you imagine that, okay, you go to the doctor and say, doctor, you know, I'm not feeling well. And you write down a bunch of questions and you give that paper, all those questions, to the doctor to answer, and he writes them out and gives them back to you. How unnatural is that? Usually you ask the doctor, so doctor, what do you think is wrong with me? Well, I think this is – they'd be able to actually explain it to you, right?

STUDENT: Yeah.

GLENN WAGNER: That's the way the real world works. So I just like what you guys are saying about presenting, because I think it's kind of an important thing that you do out in the real world. You don't do a lot of pen, pencil and paper tests anymore...

STUDENT: Mm-hmm.

GLENN WAGNER: ...out in the real world, so....

STUDENT: And we know that we learned something if we can teach someone else.

STUDENT: Yeah.

STUDENT: So it's....

STUDENT: Yeah.

GLENN WAGNER: That's a beautiful way of putting it.

STUDENT: I kind of that it's almost got the backwards feel to the traditional you be up at the board, teaching something to us and then at the end of the unit we put on paper, in the form of a test, whereas this, we're putting it in writing and then at the end, it almost seems natural to be presenting it, so it's like a backwards...

STUDENT: Yeah.

STUDENT: ...system.

STUDENT: It just continues it as we teach you, that sort of thing.

STUDENT: Yeah.

GLENN WAGNER: Huh, okay.

STUDENT: More like we're driving our own learning, like it's self-directed. You're not sitting here, okay, now look at this, now look at this. You just kind of let us do what we want; we're learning what we want. We're focusing on things that we want.

GLENN WAGNER: Knowledge building is a very, very natural process. It's something that is done out in the real world, over and over and over again, through collaboration, researching on an idea, collaborating again and continually improving the knowledge. It is just the natural way that the world works, outside of the classroom. So if it's good enough for the

world outside of the classroom, it should be good enough for the world inside the classroom, because that is the kind of work that they're going to be doing, when they get out into the real world. When I go about evaluating it, I use a little bit of a curriculum document, if I can, but as often happens, the kids go beyond the curriculum document, so you're going to have to use a little bit of your professional judgment to be able to judge how deeply the kids went and how much it is of that knowledge is valuable to the understanding of the topic that they're working in.

WAGNER'S STAGE 6 – CONTRIBUTING TO THE REAL WORLD BODY OF KNOWLEDGE

- GLENN WAGNER: There is possibly a stage 6 to this process and that is the idea that students will come up with questions and ideas that the experts are coming up with, but they come up with it independently. Or, for that matter, they come up with a brand new unique idea that no expert has come up with.
- STUDENT: A couple of us posted like our own theories...
- STUDENT: Yeah.
- STUDENT: ...that was done by able to link in all this that we learned, from all the views that we've done and do them to create our own theory and it was really interesting reading them and like building on them, with each other because it was...
- STUDENT: Yeah.
- STUDENT: ...our own knowledge and we were able to work with it.
- GLENN WAGNER: So as you guys have been building knowledge around these expert sources, has there ever been a time where you had your own theory about something that you started stitching together one idea and then another idea and thought to yourself, mm, I wonder if? Did you ever get that ah-ha moment type thing happening? And if so, can you maybe talk to us a little about it?
- STUDENT: There was something along the lines of a big crunch and we were talking about just like how the big crunch happened and like what would happen after it. And like just a thought that I had was if we have a big crunch and everything comes back to one specific place, would that, in turn, create another Big Bang? And it was just a kind of a theory that I had thought of and then someone posted a video, which actually had that theory in it, which was really cool. So I thought that kind of a connection was really neat, just the way that I had like just been thinking about that and then other people had been thinking of that, other than in the room, like actual scientists...
- GLENN WAGNER: Mm-hmm.

STUDENT: ...or people.

GLENN WAGNER: Very good.

STUDENT: I thought that was really cool.

HOW DOES KNOWLEDGE BUILDING WORK (A SUMMARY)

GLENN WAGNER: How does this process work? Well, in the classroom, you can boil down the idea of knowledge building in five distinct stages. The first one is selecting a topic that is of interest to the teacher and the student. And in this type of topic is one where the teacher looks forward to working with, because the kids really look forward to working with it as well. So usually that's going to be a nice topic where the kids are going to ask a lot of questions; the kids are going to be curious; they're gonna want to research more. So that is the first thing that I think a teacher needs to identify in their classroom.

Stage 2 involves the idea of formulating the questions and ideas that surround this particular topic. So in that regard, the teacher sets up conditions in their classroom, whether it's through field trips, guest speakers, video clips; just general questions that the students might have already, around what it is that really interests them within that topic. So you formulate a whole series of questions that the kids are now in charge of actually being responsible for answering, as opposed to the questions coming from the teacher or the questions coming from the text book.

Stage 3 is the selection of promising questions that the kids are actually going to work with. As a teacher, you're going to find that the kids produce all sorts of questions; low level questions and high level questions. And you have to filter these questions. Some of them are going to be better than others, in deepening knowledge. So the idea of a promising question is simply one that is going to lead to much deeper knowledge compared to low level questions that might be fact based. So an example might be for a fact based question, how old is the universe, it'd be a certain age. But if you ask a question, how do we

know how old the universe is, that brings it up to the promising level quite significantly.

Stage 4 of the process is building knowledge in knowledge form. And the idea there is to provide students a working space where they can share their ideas publicly, so that the students can then build upon each other's knowledge as they're progressing with their questions. So in my classroom, one of the big rules about the process of building knowledge is always working a question and leaving a question. So that there's something that's left behind that actually links back to the original big question. So you'll start seeing a whole bunch of build-ons with the kids when they actually start building their knowledge, leaving a question, building some more knowledge and researching and building a question. And that's when you start seeing the deepening of the knowledge that the students are actually producing.

Stage 5, evaluating a knowledge building environment; this one is a little bit tricky. But it is one that is full of promise. The idea of knowledge building can be somewhat resistant to a pencil and paper testing, because the kids are then in charge of their own learning, and where it is that they want to take their knowledge, is kind of up to them, within reason. I understand that the students have a curriculum to follow and as a teacher, your job is to make sure that they are following set parts of that curriculum, so they're getting at that knowledge that you want them to know about. But there's also the part that you want them to be able to investigate; to be able to be curious about areas that might go beyond the curriculum. So the evaluation process is something that can be done either through an oral communication with the students, where the group sits down and discusses their greatest knowledge advances. It could also be a written response, where the students use what's called the literature review, to be able to use each other's work to stitch

together the trajectory of their knowledge, but based on what each student contributes. So you definitely have this collaborative knowledge part to it.

This is an area that I think is still open for debate and research about how one evaluates it, because you'll find that when you build knowledge in this fashion, it takes you in unusual and interesting ways. And I think that needs to be valued and it needs to be acknowledge; not only by the teacher but also by the student. Especially if it goes beyond perhaps the curriculum that the teacher has set out.

There is possibly a stage 6 to this process and that is the idea that students will come up with questions and ideas that the experts are coming up with. But they come up with it independently. Or, for that matter, they come up with a brand new unique idea that no expert has come up with. So that, I think, needs to be valued as well. The students have given a number of examples of this idea generation that's all of their own.

HOW DO PARENTS VIEW KNOWLEDGE BUILDING?

GLENN WAGNER: At parent-teacher interviews, every so often I get a comment from a parent about, you know, what they're doing in this idea of knowledge building, and I just simply tell the parents that the kids get an opportunity to work with questions that really interest them. And I've yet to have a parent tell me that it is not a fascinating thing that they're doing with this, because like them, and like all of us, there's nothing more interesting than working with questions that really interest them. So I've been getting a fair bit of support from parents and also other teachers, regarding the idea of knowledge building because they understand the power of the questions and the idea of working with authentic problems as well.

KNOWLEDGE FORUM BEYOND THE LEARNING

- STUDENT: It really helps like with people, like you're getting so many other ideas from other people so it's like you're developing those skills for like communicating and like just accepting other people's ideas or thoughts on things and really being able to expand on other people's thoughts rather than just your own.
- STUDENT: We're more likely to seek out help from each other first, rather than just going directly to Mr. Wagner.
- STUDENT: That's true.
- STUDENT: And I think the knowledge forum's kind of helped us learn that it's okay to go get help from your fellow students. Like sometimes they know what they're doing just as much as Mr. Wagner knows.
- STUDENT: Being able to start with something as simple as knowledge forum, like you're just typing it on a computer so there's not a very high risk. But that transfers, 'cause once you get used to talking with other people online, it definitely makes it easier to talk like in class and stuff, face-to-face like.
- STUDENT: Yeah.
- STUDENT: Like when we first came together we didn't really talk much face-to-face. But as we started getting used to talking on this, that definitely transferred.
- STUDENT: I also think like when we come together, we could actually talk about what we've learned and we have like in depth discussions about everything that we've learned and we know what we're talking about and....

KNOWLEDGE BUILDING IN SCIENCE AND SOCIAL SCIENCE

GLENN WAGNER: One of the things to consider when you're building knowledge is, you know, two areas. My area's in the science side and then you've got, perhaps, the social science side and quite often knowledge building in the science side is very highly evidence based or experimentally based. So the students are actually within a little bit of a straightjacket in which they have to build their knowledge because they can't speculate wildly. Somewhere along the way you have to provide some type of – a little bit of evidence that would suggest that they might be on the right track. The social sciences, on the other hand, they I think, have more of an opportunity to expand their discussion because they're not necessarily limited to evidence based knowledge. So I think knowledge building in the area of social science is it really shows a lot of promise to get the kids' personal ideas out.

HOW DOES A TEACHER EVALUATE?

GLENN WAGNER: How does a teacher go about evaluating a knowledge forum – knowledge forum work? That is a tough one. What I often do is I find that I get the students to do more of the evaluating than myself. So I ask the students, find two or three areas where you think your knowledge went the deepest; where you think that you made the greatest advances, the greatest gains in understanding. And then from there, create an artifact. Something that you can leave behind; whether it's a presentation, whether it's a literature review or some other artifact where it showcases the student's understanding. Not only of the group but also of the individual. So we have to have that individual accountability part. So when I go about evaluating it, I use a little bit of a curriculum document, if I can. But as often happens, the kids go beyond the curriculum document, so you're going to have to use a little bit of your professional judgment to be able to judge how deeply the kids went and how much it is of that knowledge is valuable to the understanding of the topic that they're working in.

ADMINISTRATION PERSPECTIVE

FRANCIS NOVENTA: Glenn and I, you know, talked quite a bit about knowledge forum and knowledge building as a concept and we had a number of debates about what's the best way forward; how do we expand it; how do we invite people on board. So, I think, having that debate and that open conversation about questions, concerns, what's next, was an important part of the process. And then I'm also encouraging Glenn to try different things, you know, do a lunch and learn, talk to these people. And then keeping our eyes open for funding that was available. You know, the first stab that Glenn and I had at knowledge building was tied to Great to Excellence, a few years ago. We weren't successful in the proposal, but our system leaders at the superintendent level found it to be something that was interesting, so they supported it locally. So we got to try that once, before this project started.

We brought teachers together at multiple timeframes, to train them on knowledge forum, to talk more about concepts. We actually had them go through building a knowledge, building a community. We used aging, as on all of our minds, as we get more and more birthdays pass by us. So that became just an exciting afternoon for the teachers, doing their own research and asking their own questions. And when they saw how easily they were hooked into that thinking process, I think it was an easy sell to try it in the classroom.

So we invited 20, we had 20 actually take part, and I've never had that kind of carry through, so that was exciting. The feedback that we've received from teachers, they want to continue meeting, locally in their schools. They want to meet with other teachers to share what they've learned. I don't know if everybody will continue to do this knowledge forum, and a part of that, we don't know if it's going to be available for us to use beyond this year. But the idea of building questions; that concept

of leave a question, work a question; the idea of community in the learning process, I think is going to be something that we see. The idea of using scaffolds, you know, the big network of scaffolds that Glenn often shares with people, I think you'll see more of that in various forms, on paper and in different types of media.

After we had teachers committed to the project, we committed more time to bringing teachers together on multiple opportunities to share their learning, to share their struggles, to ask questions. So we had a lot of open dialogue. We learned just listening to how teachers interacted with students, how it changed their practice was quite powerful.

One of the big debates that Glenn and I have had along the way is the connection of knowledge building with knowledge forum. And my concern is always, you know, if the concept of knowledge building is attached to knowledge forum, how much attraction are we going to get when we have people who are uncomfortable with technology. Technology doesn't always work. So one of the success stories, I think, for us was that we opened it that the teachers could use lots of different platforms, so we had people doing pen and paper tasks; we had people use apps on iPads, we had people use things through Google, a cloud or cloud platform here at the Board, and we had teachers use knowledge forum, and I think that diversity allowed people to really wrap their heads around the concept of knowledge building; that idea of community learning and the excitement that can be generated in the classroom.