How might we educate our students for an uncertain future?

[David Perkins, Professor, Harvard Graduate School of Education, Co-Founder, WIDE World] Traditionally, education has been about educating for the known. It’s about what we knew. And let’s have you know it too. But today, more than ever before, we have to worry about educating for the unknown. It’s ever more important today, for instance, that people become nimble learners, because over and over again, on many fronts, throughout their lives, they are going to have to learn and re-learn and learn beyond what they already know. And if there is one thing for sure that means, it means understanding.

[Adrian Lim, Vice-Principal (Academic), Victoria School, Singapore] When we talk about skills that we need for the 21st century, the ability to connect ideas from different places, to pick up information from different sources, to synergize them, is a very powerful skill that is required in the working world today.

[Bob Gazda, Director of Curriculum (Math and Science), Binghamton School District] Businesses tell us what they would like to have coming from our students coming out of Binghamton. And what they are asking for is exactly what Teaching for Understanding provides, and that is, the ability to understand goals, understand problems, solve problems. Teaching for Understanding prepares kids for that type of environment, and this is exactly the kind of thing that our local industrial leaders are telling us they want from us.

[David Perkins, Professor, Harvard Graduate School of Education, Co-Founder, WIDE World] You see the thing about understanding, is that it’s inherently flexible. If I know x, y, and z, and I just know it, well, what am I going to do when somebody puts problem q in front of me. But I understand x, y, and z, and somebody says problem q, then I can say, well, what is that have to do with x, y, and z, oh, I see the connection, I can extract some principles from x, y, z, and you know what, they are relevant to q. Understanding is inherently more general than just knowing stuff. It has stretch, it has reach, it has leverage. That’s why understanding big, important, powerful, central things becomes a central part of educating for the unknown.

[Martha Stone Wiske, Lecturer, Harvard Graduate School of Education, Co-Founder, WIDE World] In a lot of places in the US these days, better learning means scoring better on the test. And that kind of backs teachers into a corner of drilling kids on the facts, formulas, specific knowledge that they’re going to need to fill in the blanks. At the same time, in the back of their minds, and in the minds of lots of parents and school leaders, it’s a question of “what do we really want our kids to understand?” and really helping to raise kids who will be prepared to lead the world in the 21st century.
How does Teaching for Understanding support high stakes testing?

[David Zarowin, Executive Director, WIDE World]
The tests are increasingly tests, the better high-stakes tests, are ones that in fact demand high-order thinking skills. They demand that students be problem-solvers and critical thinkers, not just filling in the right bubble.

[Bob Gazda, Director of Curriculum (Math and Science), Binghamton School District]
If you look at the New York state math test, which you will find is a question that students will have to describe that answer and provide the answer.

[Adrian Lim, Vice-Principal (Academic), Victoria School, Singapore]
I think by infusing important thinking skills, our students are better equipped to handle high-stakes testing. And when they go for the exams, they will be more confident, because they are equipped with an extra skill to take the exams on, instead of relying just purely on rote memory.

[Sharma P. Kumari, Subject Head (TfU) and Geography Teacher, Victoria School, Singapore]
Yes, you can take a text, you can commit it to memory, yes, you can reproduce it during a test, but when you ask certain questions about certain concepts, and you find that students aren’t really able to elaborate on that. That really tells you that, ok, they know this topic, but they don’t really understand it.

What is understanding?

[David Perkins, Professor, Harvard Graduate School of Education, Co-Founder, WIDE World]
We began with an idea, the idea was that we needed to look at understanding not as a bunch of information in your head, but as a performance. Understanding something is a matter of what you can do with what you know, not just knowing it.

[Martha Stone Wiske, Lecturer, Harvard Graduate School of Education, Co-Founder, WIDE World]
Understanding is a performance capacity. It is a quality of being able to use what you know actively in the world.

[Adrian Lim, Vice-Principal (Academic), Victoria School, Singapore]
In the past, we might have relied a lot on worksheets, assignments, day in, day out. And you know, we’ll probably say that you know because we gave a lot of homework, we gave a lot of assignments, worksheets, and that’s why our students are doing well. But, now, I think we can narrow it down to that is a better performance of understanding. Our students are doing that well, because we consciously put an ongoing assessment on this activity.

[Bala Amudavalli, Geography Teacher, Victoria School, Singapore]
On a normal lesson, you just keep telling them. It goes in and out. After maybe three or four weeks, maybe nothing is there. Well, in this way, students experience themselves, so it’s internalized, so at the end of the day, I think they remember more.

[Student, Victoria School, Singapore]
If you are just listening to a teacher speak, you may not find it quite interesting. But when you’re assigned projects or presentations, you have to do your own research, so you may find out more along the way, and then you may begin to like the subject better.
They are performing through a variety of activities that they’re doing in the classroom, that show the teacher, and show the student him- or herself, what do I know, what are my gaps, so that kind of performance approach really leads to students being able to demonstrate and use what they’ve learned. And we say, to be able to think and act flexibly with what they know. Well, through performances, you can see what kids are able - they’ve internalized - what they are able to do with it.

We give them an assignment where they were in charge of certain volcano. And they were supposed to be part of the tourism board, warning people of the dangers about the volcano, but at the same time, attracting people to come and visit because it’s a beautiful sight to see. And it was interesting how some of them could go beyond by telling the legend of the name behind a certain volcano, like Momei in Philippines. They even knew the legend behind it, and shared it with classmates when one of them asked. And that shows the level of preparation is high, they have actually researched, and they take the task very seriously. They were able to answer the questions that their peers threw back at them, asking them beyond what they have presented.

I think the teachers ask the students to do it this way so that they can really find out whether we understand, and not just by test when anyone can cheat or copy. However, in this method it’s not possible to cheat and copy as we have to. I do it in the method of impromptu.

I feel the whole concept of the subject, you can doubt, you can explain it to the audience and doing the Q & A section, you can answer most of the questions.

I’m ashamed to say that my students’ work in the past has largely been my thought regurgitated, sometimes very articulately, sometimes with a few more feathers to decorate it. But it’s largely been what I guided them to. And it’s largely then been boring, because I already knew it, I already said it, I already rehearsed it, and I’ve known it for years. So after taking that TfU course, my students’ work is broader because they bring to me topics I never considered before. And after TfU, they’ve also brought a deeper discourse about literature. So they’ve taken those issues, and wrestle with them, with their peers, to really present some substantial understanding. That’s a direct result of TfU.

How does the role of the teacher change?

Basically, in a Teaching for Understanding setting, the teacher functions much more like a coach than like a sage on the stage.

We go in and we gave them an activity on plates, and students actually figured out what fit together, and then they come up with a theory “What is plate tectonics?” Instead of me telling them you know, they would actually figure it out. Of course, there were some groups that didn’t get it, there were others got it. For those groups that didn’t get it, we kind of help them to go round the problem, and then it was done.
A lot of times, the students take the lead, so the teacher takes the role of facilitator in the class. So I manage discussions, but I don’t necessarily give the answers, so somebody will say this, and then I ask “Do you agree, what do you think?” then it builds from there. So students are more involved.

[Jennifer Findley, Teacher, Binghamton High School]
All of the questions that they asked each other about a piece of literature were above and beyond any questions that we ever could’ve come up with and given to them. Some questions they came up with even made our understanding of the text much deeper.

[Roxie Oberg, English Teacher, Binghamton High School]
That is really taking ownership. I think that is one of those things that would be a transferable skill. I think that’s the other thing- they are learning from this.

[Sally Crossley, English Teacher, Binghamton High School]
But it’s putting the onus on them.

[Martha Stone Wiske, Lecturer, Harvard Graduate School of Education, Co-Founder, WIDE World]
Teachers say that they gradually discover their students can take on much more responsibility for learning than they had realized, that their kids come up with really good ideas, that they are capable of helping one another in ways that they had not realized until they began to invent strategies for getting students more actively involved in these ways.

[Jennifer Findley, Teacher, Binghamton High School]
They are going above and beyond the assignment. They are not just doing it to get it done. They are producing something that they are really proud of.

[David Eddy Spicer, Research Manager, WIDE World]
Students are able to come up with ideas that may not have been in the plan book originally, and not necessarily take the lesson in completely new directions, but the lesson is designed in ways that allow those ideas to flourish, and allow those ideas to take other students’ thinking and curiosity in directions that they hadn’t gone before.

How does Teaching for Understanding change the learning experience for students?

[David Perkins, Professor, Harvard Graduate School of Education, Co-Founder, WIDE World]
Thinking, reasoning, creating, expressing, in general, gains hugely from close work with other people, from the conversations you have, from working on something together, solving a math problem, developing a little dramatic skit. Group work is a powerful resource.

[Peter Boucher, Sarasota County Teacher of the Year, Venice Middle School]
It’s this open area, I can help you do that, well I know how to do this, and well how about looking on this website, we were just over here. So there’s a definite area of collaboration, and that to me lends itself to lifelong learning.

[Student, Binghamton High School]
It takes you somewhere that you usually don’t get to in a normal classroom, you get the feeling that you are wanted and your opinion matters.

[Student, Binghamton High School]
You learn how people think differently than you, how they see things differently.

[Patty Gazda-Grace, Director of Curriculum and Instruction (English), Binghamton School District]
They’ve created a climate which students can feel that they can debate, and it becomes vociferous at times.

[Student, Binghamton High School]
It’s amazing what you can come up with. It’s like you never thought about some things. You know, but when you get different peoples’ ideas, and then you feed off of it, and then you are like oh my gosh, I never thought about that. But … yeah you really do come up with crazy things.

[Martha Stone Wiske, Lecturer, Harvard Graduate School of Education, Co-Founder, WIDE World]
In many cases, people say that students have become much more interested in their work, that instead of treating school as something that’s the teacher’s business that they maybe put up with, that the work of school really becomes their own business.

[Student, Binghamton High School]
The second period of morning, usually, nobody would want to go to that class, and like everybody comes.

[Student, Binghamton High School]
You know, it’s great because it’s like I feel that I’ve finally had a say in the classroom, and like, I get to learn in a way that I want to learn now.

[Erin Quintero, Teacher, Binghamton High School]
The students now in my class have changed radically in terms of how much ownership they take of their learning. They now see themselves as responsible for gathering information, for presenting information. And my students here their voices honored in the room, and not honored just by me, but honored by their peers.

[David Perkins, Professor, Harvard Graduate School of Education, Co-Founder, WIDE World]
One has to involve the learners themselves in the feedback loop, that itself is a powerful learning experience.

[David Zarowin, Executive Director, WIDE World]
They are looking at their own work reflectively, and they are saying: “Okay, how does my work compared to what these criteria that were presented at the beginning”. And also they are learning how to give feedback to their fellow students. And so in that way, they become much more active participants in the learning process.

[Student, Binghamton High School]
You grade everybody around you and you grade yourself. And that kind of gives you an oversight of what you need to do next time, what you need to do to improve on.

[Student, Binghamton High School]
You are getting more than one point of view and you are also getting opinions from people of your own age group, so that means they have a different view.

[Student, Victoria School]
If it’s just a teacher, we’ve only one opinion, but if it’s the students, we have a lot of opinions. So we know more ways how to improve our presentations and projects.
I always want my students to enjoy what they are doing. But I think, I’ve now seen that it doesn’t have to just be fun, silly, or easy to be enjoyable, it just has to be engaging. So TfU has definitely infused that idea, probably forever. It’s indelible print on my teaching, the way I would design a lesson plan.

How might we improve an entire school or district?

When Teaching for Understanding was originally envisioned as a research project, it was individual teachers and individual classrooms. As the project has matured and grown through other Project Zero initiatives, and grown into WIDE World, it’s come to a time when we recognize the reform of classrooms hinges directly on the reform of schools and of the school systems. And that’s where WIDE is trying to have more and more of an effect through its teacher leader pathway, through the school administrator pathway.

If you look at the professional development that we’ve done in the past, it hasn’t been as focused as Teaching for Understanding. And I believe what we have here is a package, a complete package of what good instruction looks like. We’re bringing to Binghamton a set of standards that we can use to build on, and that’s what we feel Teaching for Understanding is.

We have made Teaching for Understanding a core professional development course for all our teachers because it is a school-wide approach.

This is a perfect way to allow our staff to take courses that fits their needs.

How are WIDE World’s courses designed and delivered?

I would tuck my children at 8 o’clock, and then I might start my course work at 9, and continue for a couple of hours. And that was just a time when I could dedicate to nothing else but my TfU course. That flexibility is key for me. I don’t think I could sign up a class where I would have to physically be present at certain time each week.

The value of WIDE World courses, which take place over 6 sessions, might be 6 weeks or 12 weeks, is that the participants in them have multiple opportunities to talk through knowledge, and then actually translate that into terms that make sense in their own practice.

Our courses are designed in a way that teachers don’t learn a whole bunch of stuff at once and then have to figure out what to do then, but they learn incrementally.

As the teacher picks up all the important ideas from this online learning based on WIDE World platform, our teachers are able to reflect on their own existing practices in the school.
[Mark Bruns, Science Teacher, Venice Middle School]
Each two weeks, we have a set of assignments which include entering to a discussion board, and also submitting written assignments. Those are the components that the class entails.

[David Perkins, Professor, Harvard Graduate School of Education, Co-Founder, WIDE World]
The entire course, and there could be hundreds of people, is divided up into smaller groups, and each group has a coach.

[Erin Quintero, Teacher, Binghamton High School]
The coach’s role is to challenge you to think further. So every post that the coach would post for me was always asking questions about something I posted earlier. And that just gets me to extend my thought. And that’s speaks a little bit to what we asking our students to do. You don’t just know something, package it up and put it away. You keep revisiting it, revamping it, and comparing it to other units that other teachers are doing. So the coaches challenged us to think it through again.

[David Perkins, Professor, Harvard Graduate School of Education, Co-Founder, WIDE World]
People enrolled typically in small teams, rather than solo. So there’s a cluster of small teams, maybe 10 or so small teams of 3 or 4 people with its own coach, so there’s much more of social mix, much more in the way of lateral conversations, rather than conversations directly to the digital front of the room. All of this makes a huge difference, and all of this is basically an enactment, a playing out of the Teaching for Understanding model itself.

[Sally Crossley, English Teacher, Binghamton High School]
Part of me just likes having a conversation with people all over the world. I’m fascinated to see what other people are teaching and how they are teaching. I feel as though the world is becoming a smaller and smaller place and we really need to know what they are teaching their students in China, what they are teaching their students in Australia, I want to know that, because we do need to expand our curriculum and we need to include that all. And I want to see that.

[Martha Stone Wiske, Lecturer, Harvard Graduate School of Education, Co-Founder, WIDE World]
Learning in a network of environment online not only intensifies the dialogue between the instructor and the learners, but among the learners themselves. In these online courses that WIDE World has set up, certainly the participants learn a lot from their coaches. We also see that the participants learn a lot from working with one another, from hearing from other people, sometimes in their own building, their own school, or from elsewhere around the world – “What did your kids do when share your goals up front, how do you get students to the point that they take responsibility for doing more assessment of their own work?”

[Patty Gazda-Grace, Director of Curriculum and Instruction (English), Binghamton School District]
This is a perfect way to have a community not with just people within a district, but around the world.

[Kenneth Chong, Research Activist and English Language Teacher, Victoria School, Singapore]
We got to communicate with people from many, many different countries. Very interesting, I would say.

[Mark Bruns, Science Teacher, Venice Middle School]
We were collaborating with teams of educators from Australia. They reviewed our plans, and we reviewed their plans. We both helped each other. That collaboration is the key to how WIDE is maybe different from some other online classes that I’ve taken.
You maybe doing a similar subject a similar topic, but somebody else in a different part of the world handles it in a very different way. So that was a very interesting experience.

How does a common language and framework inspire great teaching?

The process of getting to be a better teacher is one that takes time, and it takes reflection and it takes dialogues with coaches and colleagues. Teachers learn a detailed language for deciding whether their curriculum is generative, whether their understanding goals really focus on big ideas, whether they have made them public to the students. They have a way of looking at their lesson activities and thinking “How many performances of understanding have I got here and have I sequenced in a way that is really ramping up. What am I doing about assessment, is it ongoing, is it the criteria public and clear connecting back to the goals?” So the specificity of conversation, I think, just enables good teachers and effective school leaders to become much more precise and focused.

It doesn’t tell teachers to abandon what they have done and it provides them a way that actually sort of name and think about what they are already doing and give it a kind of language that they can share with other teachers.

Previously we would sit down and actually prepare a lesson together. All of us would be all kinds of ideas and there might be a lot of conflicts. But this time round, because TfU gives us guidelines and framework, so that we have to follow that, you know, and as a result, when we discuss this there’s a lot of focus and direction, and that allows us to be more productive at the end of the day.

What we hear from the teachers who take our courses is that they are getting into engaging a level of conversation, and dialogue and exchange that is really refreshing and is different from they are used to. And, in fact, they are having conversations with their colleagues in their school – online - that are richer than the conversations they have with them in the hall.

We’ve had teachers say they’ve worked down the hall from the same person for 20 years, and didn’t actually have a conversation with that person about curriculum in a meaningful way until they were in this online course together.

How does WIDE World unleash renewed energy for learning and teaching?

What we hear a lot from teachers who take our courses is that they got a kind of renewal professionally that gave them the kind of desire to keep on going, to sort of remind them why they are teaching in the first place.

It’s empowered me to be a better teacher and empowered the kids to be more interested so that they become better learners.
When a teacher feels energized like that, and is bringing that into the classroom, it has direct benefits for the students as well.

Both teachers and students can share the ownership of the curriculum, and that makes learning very, very powerful.

The learning energy that is unleashed as teachers and kids become active creators of knowledge. It’s like nuclear fission. I mean, it really feeds itself. And that’s what I think is the most powerful part of this process.

It makes me want to teach better, and makes me enjoy teaching, just like I think the kids also enjoy the learning better now.

When the kids are excited about learning, I’m excited about teaching. Behavior problems have become less.

I see myself more as a professional, because I’m actually involved in designing a unit, and involved in refining it, planning it, implementing it, and at the end of the day gathering data from my students to see how well it has worked, so I’m also researching at the same time. I’m not only a teacher, I’m a researcher as well. So to me that’s really rewarding.

It shows that all the work that went on before in the other classes, from middle school, elementary school on up, really has been heard but we haven’t captured it in our traditional methods. That writing a 5 paragraph essay after, you know, reading the book as a group, which we labored over, we would not see the evidence then that the student really understood the novel and understood the craft. But what you’re hearing in the conversations has demonstrated that they do know, in ways that we even didn’t quite grasp, that that really is there. We just weren’t tapping into it. And we weren’t giving the students a vehicle in which they could discuss it, to demonstrate their understanding. So how powerful it is to unlock that for them, which is what you’ve done.

It just makes sense to me, why we didn’t do this more. And we will.

I’m so proud of all of us, that we’re doing this. It’s really neat, it is a neat thing.

How far have we come and where are we going?

So we’ve come a long way.

We have.
[Nancy Zuwiyya, English Teacher, Binghamton High School]
We used to end our units with the test, put it away, record the grade, and go on the next thing, and no continuity. And now it’s a very different way of thinking about things, much for the better, for all of us.

[Patty Gazda-Grace, Director of Curriculum and Instruction (English), Binghamton School District]
We used to teach, it was like, okay here’s the unit, we make up our study guide questions, we don’t ask the students what the questions are, at the end we have the test.

[Nancy Zuwiyya, English Teacher, Binghamton High School]
And we tried to be very thoughtful about what did. And I think we did it well, but now I think we have a different perspective on things. We’ve learned more about intelligence, and cognition, and learning, and how things should be done. And we’re sharing more, and it’s working. I feel very fortunate to have been involved in all this.

[Patty Gazda-Grace, Director of Curriculum and Instruction (English), Binghamton School District]
We are encouraging all of our staff to take the course. So you are looking at the mobilization of possibly, 300-400 teachers. Just imagine the impact of 400 teachers using this process with their students, you’re talking over 5000 students each year that have a voice, where pedagogy is different, where instruction is different. I mean I could have retired last year, but I don’t want to. This is too interesting, too interesting for me.