

## The Work of the Institute for Knowledge Innovation and Technology

MS: [00:00] The Institute for Knowledge Innovation, IKIT, we say for short, was co-founded by Carl Bereiter. I was the second co-founder. And what we've been learning over these many years of research that we've been involved in is that any educational model is going to get you educational gain. So any concentration on thinking, working with students, more interaction is going to get you that advance. But we really were doing, we were studying the differences, though, between experts and novices. And we were interested. There are dramatic differences, of course, between experts and novices, but some novices seem to be more on the trajectory to expertise than others. So for us, the big question was why. Like, what are those students doing who are on that expertise trajectory?

Well, the kinds of contemplation, the kinds of risk-taking with ideas, the—even just bravely saying, “I don't get it. How did you think that out? And I thought ...” So this notion of working ideas in intensive ways, and what we noticed in all of our studies—I mean, a—all of our studies, hundreds of studies, was that this ability to transform your knowledge, to literally work with knowledge, identified those students on this trajectory to become deeper understanders, better able to do the work.

So we began to realize that the culture that supports this is pretty rare actually. Students are mostly asked to perform, to do well, to get the right answer, to paraphrase, to do the things that show accomplishment. But this kind of putting your hand up and said [sic], “I don't understand that,” you know, that's a—that's not been traditionally prized in—in classrooms. So these students quietly contemplate and do this.

But we started wondering, “What would it be like if we could take the power of new technologies, if we could take our understanding of the expertise, of the process of expertise and innovation and literally embed them in the culture of the classroom? Embed them in the technologies, create the kind of community supports for this kind of work.”

And then, I was teaching a huge class at York University. A, like, well, huge. I guess not huge by the new move standards, but anyhow it was almost 400 students. And it's really hard getting past giving a lecture and—and testing to see if anybody's getting anywhere. And that was the first—this was 1983, and so that was the first that I was studying expertise and I was thinking, “Gee, how do I get their voice? Like, how do I hear what they're thinking?”

And so, thought, “Well, if we had a community space, if we used our technology to have them make some entries so I could read them, they could read each other, we could form more of a community even though it's 400, you know, we—that we could actually get more engaged.”

That was the birth of what we at that time called CSILE, Computer Supported Intentional Learning Environments. And so, we started to build the technology. We did the first installation at York University and then I moved to OISE and Bob McLean(?) was a computer scientist at Com—Carnegie Mellon, and he helped us put a new version, and by, I think it's 1986, we had one in a Grade 5/6 class at Huron Street School in Huron, Ontario, and it's been in use ever since, every school day that we're aware of since that—that time.

So the real idea was to take the process of expertise and innovation, find a context—find a way to build it into the technology. So—so for example, we knew that experts worked with theories. They have some thought about how to advance beyond what they understand. And for them, theory is a really demanding—you need to think of, “Well, what are all the facts that either support, or you know, can I explain this?” So your theory has to be powerful. It has to explain what you know and what you don’t know, so you have to say, “Hmm, gee, my idea right now just doesn’t fit with this idea. I’ve got to improve that.”

So we really started thinking, you know, the—the data all suggested that students can’t even constem—contemplate abstract thinking, theory thinking, until **[05:00]** minimally high school. Like, this is really advanced. Piagetian theory would say, “Oh, that’s abstract reasoning. You’ve got to hold all these ideas in mind. You’ve got to contemplate alternatives. You’ve got to come up with an explanation that does justice to all those ideas.” So really powerful thinking.

We thought, “Well, how do we know that young kids can’t do it? Like, the literature would suggest that, but if they never had a culture, if they never had support for it, they’d never be asked to do it. Maybe we have competencies here that we don’t even know of.” So we built a little scaffold into the technology where the kids simply have to push a little button and the words “My theory” jumps into their text, or “I need to understand,” so instead of waiting for the teacher to tell you what you need to understand, you say “I need to understand.” This very simple trying to embed powerful operations in their discourse has ended up now we’re in senior kindergarten: kids are talking about their theories. Dah.

And so, it’s just an example of—of the Institute—or it—it’s an example of the kind of work—the research that suggests that if you can make a high level thinking transparent; students, it’s not that they resist it, it’s just that they haven’t seen this world. They need to live it. They need to be engaged, and they need communities, their peers. People need to support it. So you know, being a good theory person would also, if I’m exploring somebody else’s ideas, I’d say, “Hmm, my theory can’t explain what you’re saying,” or, “Oh, your theory’s interesting, but you know, I don’t see how it fits with this.” You’ve got to work with people. You need a community.

So IKIT was established to say, “Could we keep this forever innovative advancing of education going and could we work with the ...?” Teams internationally have always—well of course, nationally and internationally, but you get a real sense of the different cultural variations, the multicultural, multilingual context in which if it’s—if—if you’re really getting it, expertise and innovation, then this is not just about schools. This is about knowledge-creating societies. It’s about—that’s why we committed to have the work go on in health care and different organizations, in companies, NGOs. It—it—it—expertise and innovation is what we’re really trying to get at and that’s what the Institute was designed for.

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