[MUSIC PLAYING]

HAL ABELSON: --not some off-in-the-future-- we right *today* are in the place where even high school kids or maybe even younger can actually create a national resource that's available to everyone in the world.

SARAH HANSEN: I'm Sarah Hansen. Today on *Chalk Radio,* my guest is Hal Abelson, legendary professor of computer science and engineering at MIT. Hal came to MIT as a graduate student in 1969 and has been teaching here since 1972. He was *instrumental* in conceptualizing MIT OpenCourseWare, which is not at all surprising, given that he's dedicated his whole career to opening computer science to everyone, even and *especially* children.

In this interview, we talk about his involvement in developing the first programming language for young people. We also talk about his *App Inventor* platform, artificial intelligence, and his vision for the future of MIT OpenCourseWare. So without further ado, here's my conversation with Hal Abelson.

I want to take you back in time for a minute--

HAL ABELSON: Sure.

SARAH HANSEN: --back to 1987. It was a very hot, muggy summer in Yardley, Pennsylvania, which is just across the river from Trenton, New Jersey.

HAL ABELSON: I'm from near there in New Jersey.

SARAH HANSEN: OK, so you know.

HAL ABELSON: I know the hot, muggy summers.

SARAH HANSEN: You know the hot, muggy-- so I was about 10, and we had only one window air conditioner in our house. And so my mom signed me up for a computer class-- this was one of the first of its kind-- at a local elementary school during the summer, I think mainly just to get me out to the house.

And so I go in. There are maybe like 10 other kids there. We pull up our squeaky chairs to this box-like beige computer-- and it had maybe a little colored apple on the corner bottom-- and turned on the screen. It was black, and some green lines flashed.

And then a little turtle showed up named Logo. And the teachers began to teach us how to make the logo go up four squares, right four squares. And that was my first introduction to computing, really. And I never thought that I would be sitting across from the person who helped invent Logo, the first computer programming language for children. And that's you! Could you tell me about your involvement?

HAL ABELSON: Oh, well, my involvement with Logo goes way back to '69 or 1970. As far as the turtle, 1987, of course, is late from my perspective of that. But when I first showed up at MIT-- I can say a little bit more about how I got to know Seymour Papert and Logo.

But the first project I had was Logo originally was working with kids at Muzzey School in Lexington. And we had a thing called the turtle, which was a yellow thing about 2 feet high that kind of looked like a vacuum cleaner on wheels. And that was the actual first turtle. And it was really the best one because kids could ride on it. So not only could they move the turtle around and write a program, but they could ride on it.

But after a while, we got this idea, well, wouldn't it be kind of nice if you could do something on the display screen? And of course, in those days, you just didn't have a computer with a display. And you certainly didn't have one in Lexington, far from MIT. So we set up a thing where you could run a display over phone lines and write commands. And my first job at MIT doing things was, why don't you make a turtle thing that could run on the display?

So Seymour I mentioned a little bit before. He was a mathematician with an interesting background. He actually worked for Jean Piaget, the--

SARAH HANSEN: Oh, really?

HAL ABELSON: --incredible, incredible--

SARAH HANSEN: Oh my gosh.

HAL ABELSON: --patron saint of all child psychology. He worked for Piaget and worked in Piaget's lab thinking about that stuff. And then he came to MIT, again, as a mathematician to do mathematics research. He worked in topology. And then I guess-- I don't know how he got associated with Marvin Minsky, but the two of them together started the MIT Artificial Intelligence Laboratory.

And then, as I said before, it really became a thing about intelligence and a thing about empowering-- well, "computers are for kids" was the phrase that we all used. A lot of this stuff comes from Seymour. He didn't invent the term computational thinking, but he really popularized it because, again, coming from his background, the key word is thinking.

So it's not about, how do I make a program loop to sort numbers? It's about, what does this have to do with the way I think about the world, the way I think about how to make things happen effectively? And one of the most obvious ways to do that is you put it in a very formal system like a computer. And part of that is just the thinking that goes with it.

So he popularized this thing called computational thinking. He sometimes called it procedural thinking. The critical book is one he wrote called *Mindstorms,* which everybody should read. And everybody should still read it.

SARAH HANSEN: *Mindstorms.*

HAL ABELSON: *Mindstorms.*

SARAH HANSEN: OK.

HAL ABELSON: And it just expresses this philosophy. A lot of what he did talked about the turtle, which is what you talked about in 1987. But it really focuses on-- this is about helping kids get ways of thinking that are amplified by these incredibly powerful machines.

And Papert really is the genesis of this. Papert then left the AI Lab and then went to become one of the principals in the MIT Media Lab. He and Marvin Minsky just, again, really, really-- along with Nicholas Negroponte, they really started the Media Lab and promoted it. And they rented it.

And of course, one of the things that happened was working with Mitch Resnick, Professor Mitch Resnick these days, who started as a graduate student in the MIT AI Lab working in Logo and then, in the Media Lab, started the Lifelong Kindergarten project, which really focused on partly computational thinking but very, very much creativity.

So Mitch really pushed, that kids could use this thing to make these wonderful artistic animations and pictures and things to see themselves as empowered creators. And of course, Scratch has been insanely successful, and it's still going with this image. But this really, really, really goes back to Seymour Papert. I can't emphasize enough how critical he was to this whole development of what people think about computer education these days.

So at MIT, in the Logo project, we refer to those things as the floor turtle and the display turtle. And my first job was actually to make a display turtle. So that's what you saw 15, 16, 17 years later. It evolved to that.

SARAH HANSEN: Yeah. I have to ask, why a turtle?

HAL ABELSON: That's based on work by a British AR researcher named Graham Walter, who thought about these kind of autonomous robotic devices. It's even way before AI. If you look at what's called the cybernetics literature, Graham Walker was one of the leaders in that. And he made a device whose-- was programmed to run around the room and plug itself back in, and he called that the turtle. And so that's where we got the turtle from.

SARAH HANSEN: OK. This was specifically designed for children. And I'm curious, why children? Why was this important to you?

HAL ABELSON: So that really comes from a view of, what do you think all of this computer-- today we talk about AI for real and are impressed by it. But the motto we always had, going back to a different kind of AI when I was at MIT in 1969, was the beginning of the MIT Artificial Intelligence Laboratory, which is the precursor to the MIT Laboratory for Computer Science, which is the precursor to MIT Computer Science and Artificial Intelligence Lab. So there was a lot of work initially in that. The leaders of the MIT Artificial Intelligence Lab project were Seymour Papert and Marvin Minsky.

And so what was interesting in those days at MIT-- the same graduate student researchers who were forging ahead at the boundaries of AI were also thinking about kids. And the link there was, how do you think about intelligence? So it wasn't just machines, and it wasn't just teaching. It was, how do you try to understand intelligence from working across the boundary? So what was really nice is the same graduate students who were writing the breakthrough theses at the beginning of the AI were also working with kids.

And we had this expression because then, of course, in those days, computers were used by the Defense Department and some very, very large industries. We're talking 1970, 1971. And so the phrase we always had was "computers are for kids." And that persisted, eventually going into the MIT Media Lab, Mitch Resnick starting the Scratch program. And it was always really about creativity and kids.

But there was a larger picture of, what do we mean by intelligence? And again, I'm talking about 1970, 1971, '72. But that's coming back. If you look at today, the news today is all about, are these machines intelligent? And there's a little bit of deja vu there.

But it's the same sense of, my god, we're making something that in that it's about intelligence as we see in kids. But it's also about, what do we mean by what it means to be human? So there's a very deep kind of discussion that's going on-- I was going to say "under the covers," but certainly not now, certainly not in the last months. But it really is about, what do we mean by humanity? What are we? It's about us.

SARAH HANSEN: Yeah. Yeah. And I think another thread there is, whose intelligence, and who gets to shape the artificial intelligence? And so what I see in your work is a strong intention to democratize computing.

HAL ABELSON: Yes. Absolutely, absolutely. I mean, the key-- I run this project called App Inventor. But the key vision is this really is for everybody. And even when you talk about kids, it's not even kids who want to go learn about computer science. It's about giving kids the sense that this wonderful technology can be something that empowers them for their own personal goals.

But of course, that extends. It's not just about kids. It's about everyone who does not have technical training. So one of the things I'm interested in MIT is I teach a section of MIT's main introductory computing course specifically for people coming to MIT who have never programmed before. But it really is saying, you don't really need this technical background because the critical thing-- you used the word democratization. The critical thing is, do you view this technology that's happening and transforming the world as something for you that can improve your life personally?

And so you see that in kids. We do most of our focus on middle school kids, but also, we work with younger kids. And we even have some projects with adults. Another project that I'm doing in mine is we're teaching creating apps to residents at Maine State Prison. So that's certainly an example to adults. So kids are a very visible and interesting part of it, but it really is a message that this ought to be for everyone.

SARAH HANSEN: And that's really the underlying principle of the App Inventor. And I'm wondering if you could tell me a little bit about the App Inventor, what it allows people to do even if they don't have a technical background.

HAL ABELSON: Right, right. I mean, especially if they don't have a technical--

SARAH HANSEN: Especially.

HAL ABELSON: --background. That's what we really, really, really care about. When I talk about App Inventor, I use the phrase computational action. You hear a lot of stuff going on in education, where people talk about computational thinking, which is extremely important. And in fact, Seymour Papert is pretty much the originator of that idea.

But I want to distinguish computational thinking, which means learning about the concepts of computing and all of this stuff, from a thing called computational action, which is, how do I see this technology as something that can improve my life, that it can improve my family's life, that can go on and even talk about maybe my country? And the moonshot is, can that be an attitude that goes to everyone in the world, even young kids and even in the poorest countries?

So let me give you a couple examples. Dharavi, which is outside of Mumbai in India, is one of the largest slums in Asia. So it's got about a million people, and the average family income is something like $100 a month. So there's a thing in Dharavi-- in addition to all this other stuff, there's a group in Dharavi called the Dharavi Girls for Change. These are girls from sort of like age 13 to 16.

And what they do is they create technology and mobile apps, a lot using App Inventor, to improve the lives of the people around them in Dharavi. So one of the apps they made is something where you can schedule your family's time at the community water distribution plant because you can imagine, if you don't do that, you have to go there, and you have to wait. And there are fights, and there's arguments and all of this stuff.

And of course, you know who the family is going to send to have to wait and argue with everybody else. It's their teenage daughter. So these girls see this use of technology-- they've made an app that does the scheduling-- as something that can directly have an impact on their lives. Not a thing that, well, maybe they'll learn about computing, and maybe someday they would go to get higher education or something like that. Something that they can do right now, and they see this thing immediately as something that's a benefit to them and their families.

Another one from that same group is they made an app called Women Fight Back. And it's inspired by them watching their mothers coming back from work after dark in the slum. And so they've made an app that's specifically for that.

And what does it have? Well, of course, it has a thing to call for help. It has a thing to say where you can get information. It has a thing where you can broadcast where you are and figure where you are. But again, it's not, to them, an abstract thing. It's saying, how does this technology really, really improve my life and my family's life?

So that's one example of what's at the core of App Inventor. Another one to talk about is in Moldova, which you know something about. So Moldova has-- in addition to problems with Russia, it has a problem with Hepatitis B because there's a real need for pure water. You were going to say something about that because you have experience.

SARAH HANSEN: Yeah, yeah. So I was in the Peace Corps in Moldova a lifetime ago from 2000 to 2002. And Peace Corps issued me a water distiller when I got there because there weren't potable water sources. So I would spend 12 hours to get half a gallon of drinking water. And of course, that took enormous amounts of electricity, and that was enormously expensive. So it was a systemic problem to deal with.

And so when I learned about what young adults in Moldova were doing with App Inventor, I got really excited. And I was like, yes, this is a real problem that youth are addressing through technology. And I would love if you could share a little bit more about what they did.

HAL ABELSON: Right. So this is a group of-- I think it's four or five high school girls. And what they made is they made an app that you run on your mobile phone. What you do-- if you go around-- if you find a source of water, you take a picture of that. You fill out a little questionnaire that says something like, is the quality good?

And there's something else and a couple of other things like, oh, at this well, the pump handle is broken, so you can't use it-- what today is a pretty simple app, but a very direct one. But then what they did is they used that and put it into a database that they put on, in this case, Google Maps. And so if you're driving around Moldova, you see a picture on the map of where the good water resources are.

And it's not that the app is such a wonderful thing or such high technology. It's just, imagine there is now a group of four high school girls who have created what you can call a national resource that's available not only to everyone driving around Moldova, but, in principle, to everyone in the world. And that's amazing.

That's kind of what I refer to when I talk about-- there are these moonshot things about this technology should be for everyone. And just realize that not some off-in-the-future-- we right today are in the place where even high school kids or maybe even younger can actually create a national resource that's available to everyone in the world. You have to keep saying it to yourself because--

SARAH HANSEN: I know. It's incredible.

HAL ABELSON: --if you said that three years ago, it would be almost unbelievable. It's the kind of thing where if you said to the researchers here at MIT five years ago or 10 years ago, they'd say, you're kidding. We couldn't possibly do that. That's a thing that a giant company needs to do. And now you get to the place where four kids can do it.

SARAH HANSEN: Yeah. But I have to ask, how do you and your research group make it that easy? Like, could I go on App Inventor and start inventing apps?

HAL ABELSON: Oh, sure.

SARAH HANSEN: But what behind-the-scenes work do you have to do to make it so easy for people without technical experience to make these apps?

HAL ABELSON: Well, there's a lot of-- there's a lot of behind the thing. The most visible one is you actually create these programs by-- the program elements kind look like Tinkertoy blocks. And you go to the screen, and you drag them around and piece them together. That's how you get an app.

That actually comes-- the jargon is "block-structured programming." We were inspired to do this by Scratch, just seeing the great success of Scratch and that Scratch's work was based on some previous work that started kind of at the very beginning in the Media Lab and a little bit before. But the idea is you don't really type programming code. You drag around these blocks, and that makes it easy.

But then, of course, the other part of it is, what can the blocks do? So I have a block that lets me put something in a database. So for somebody to do that, you just have to drag this block and say what database you want to put it into. That's partly how you make it easy.

But of course, the other way you make it easy is by presenting good ideas. There's a phrase that the most important idea to learn for kids in computation or for anyone is, what's worth making?

SARAH HANSEN: That's a big question.

HAL ABELSON: Not all of these technical things like loops and coding and all of this thing, but really, what's worth making? How can you make a difference to yourself, and how can you make a difference to the world? That is the key thing you'd like people to start understanding. And again, not just kids. Everyone.

SARAH HANSEN: Right. Well, I feel like that loops back to what you were talking about with AI and, what is intelligence today? And I feel like this is exactly where we need humans is to--

HAL ABELSON: That's exactly right.

SARAH HANSEN: --determine what is worth asking, what is worth knowing?

HAL ABELSON: Right. It's partly what's worth asking, what's knowing, and partly there's an enormous amount of research going on, as we both know, right now. It's crazy. There's so much money going into startups making things like computer tutors and computer acting things. But what's not there is having the computer make an affective connection with people using them.

I mean, I work in computing education. And that's just missing, We can make computer tutors as smart as we want and have all of this stuff. But what's really hard is to get what an outstanding teacher can do, which is the affective emotional connection with kids.

The world is right now so crazy. There are probably eight startups that are working on this. But that's not where we are now. Remember, Piaget's central idea is this thing called constructivism, which kind of says, people construct-- and kids-- their own knowledge. We distinguish that from instructionism, which is not about giving people this data, but allowing them to create their own. So Piaget made a thing called constructivism.

The thing we talk about at MIT in our project and very much in Scratch is the thing that Seymour invented called constructionism-- not constructivism but constructionism, which highlights the importance of making things-- not just making your own knowledge, but actually making things that--

SARAH HANSEN: With your hands, yeah.

HAL ABELSON: --you can share with other people. And that is absolutely, absolutely central to how we think about things.

SARAH HANSEN: Yeah. Yeah. So interesting, so interesting. But an important part, going back to Piaget and constructivism and how it connects with instructionism, is that you have to connect new knowledge to what students already know and their experiences, their preexisting knowledge, right?

HAL ABELSON: Oh, that's absolutely true.

SARAH HANSEN: And going back to what you said before, if we move forward in this generative AI educational landscape, you need people who understand what students' previous experiences are and their context and what they know before you can even begin to attach new knowledge to it. So I think we would be remiss if we tried to replace people with AI entirely.

HAL ABELSON: Well, of course, there's a lot of-- there's a lot of research going on in that the-- I mean, the only thing to say these days, especially today, if you come up with any idea, there are probably eight startups who are working on it. So of course there's a lot of saying, how do we know what students already know so that we can appropriately tailor our lessons to that? But that really comes in-- that's really instructionism.

SARAH HANSEN: Yeah. And when I say what students already know, it's so much more than content area knowledge.

HAL ABELSON: Absolutely.

SARAH HANSEN: It's their life experiences, their identities, their languages, their relationships to the community. It's so much bigger.

HAL ABELSON: Yeah. That's what's really, really critical.

SARAH HANSEN: Right. And I don't know how large language machines or AI, how they would tap into that in a human-like way.

HAL ABELSON: Well, I don't know either. But you can bet--

SARAH HANSEN: Oh, no.

HAL ABELSON: --there are people working on it.

SARAH HANSEN: No! [LAUGHS]

HAL ABELSON: There is just so much ferment and money and so much investor appetite for-- you can bet that on any idea, there are people working on it.

SARAH HANSEN: I know. I know. Well, I'm going to have to think about that for a while. I just-- I'm pro-people. I know we're going to have a future where we're going to all exist together. There's going to be AI, and there's going to be people. And hopefully, we'll live in a future where AI enhances what humans can know and do and create. But fingers crossed, everybody--

HAL ABELSON: Absolutely.

SARAH HANSEN: --that that's where we're headed. [LAUGHS] Is there anything you think we need to think about specifically when engaging children with AI today as a group?

HAL ABELSON: What do you mean?

SARAH HANSEN: Like, when we're thinking about generative AI in the field of education and engaging children with leveraging AI or computing to, say, create apps for computational action, is there anything, any critical questions we should be asking ourselves in that realm, specifically as it relates to children?

HAL ABELSON: Well, there's a lot of verbiage going on that's saying, as these kids get older, they're in a world that is permeated with these kinds of devices. So the question is, how do you become an engaged, effective citizen in a world like that? What is it that you need to understand?

And people say that sort of thing, so they say it pretty well. One of the things to understand is these things are not always truthful. They're not always right. They have lots and lots of defects to be appropriately skeptical about what these things are doing because even today-- I mean, forget about AI. You see the crazy effects of something appears on the computer, and people tend to believe it.

And that already has enough harmful effects on society. But imagine that expanding to a greater degree, where you really have these AI things. And they sound incredibly convincing. But what they're saying is nonsense.

SARAH HANSEN: Yeah. I wonder how, in the future, if our definition of reality will even change.

HAL ABELSON: Oh, that's a really, really good point. I'm so glad you said that because what happens, again, with respect to-- think about these AI systems. These AI systems do what they do because they're trained on a lot of data from the internet. Now, just imagine that more and more of the stuff on the internet is the outcome of these AI programs themselves--

SARAH HANSEN: Yeah, synthetic.

HAL ABELSON: --which themselves have things that are harmful and wrong in them. And then you say, what's reality? Do we as a society even stop believing that there's such a thing as truth, because the place where everyone's getting their information from is so polluted by exaggeration and by things that are false?

So I mean, the real, I think, fundamental danger is that we as a society lose respect for truth. And that might sound extreme, but it's a real, real, real possibility. You see it now on the outliers of social networks. But just imagine that extending and extending and extending.

So one of the things that you have to start with kids is to understand that these are not always right. And they can be both biased, and they can be extreme. And so one of the things you do is try and instill skepticism in kids.

SARAH HANSEN: Right. And I think an important part of instilling skepticism is human connection because you have to be aware of what other people's realities are and their experiences. And if we become so screen-centric and isolated from other people--

HAL ABELSON: Oh, yeah.

SARAH HANSEN: --we're never going to get those other perspectives.

HAL ABELSON: Yeah, that's right. I mean, there's a lot of science fiction authors who think about that, but that's becoming real. And it's something that's happening now. And it's certainly something you can imagine seeing within three years or five years or something. And we should be thinking about that now.

SARAH HANSEN: Yeah. I think this all ties back to your deep desire to, as I called it-- and I think maybe you agree-- democratize computing, computing action, because if we don't, the reality of the world will be defined by the few people that have the technological skills to shape it.

HAL ABELSON: I think that is absolutely, absolutely correct. And again, democratization does not mean that everybody knows a programming language or that everybody understands what a loop is or understands how to make an algorithm or something. That's part of it. But really, it's a question of, how can I view this thing as something that I personally can do to improve my life and to do something that hopefully has some social good in it?

So that's why I said the critical thing, I think, in teaching kids about computing is not computer languages or all the stuff that I do in MIT courses. But what's worth making?

SARAH HANSEN: What's worth making, yeah. And I'm so curious where this comes from for you. Like you were involved with starting MIT OpenCourseWare back in the early 2000s.

HAL ABELSON: Right, about 2000.

SARAH HANSEN: Yeah. You wanted to unlock knowledge, again, for everybody, and you were fundamental to that. And your work even before that, starting in the late '60s and '70s, allowing children to have access to computing, where did that come from in your life? What planted that seed for you?

HAL ABELSON: Well, let's see. I started doing stuff with computers, well, probably in high school, where we lived near an air force base in New Jersey. And somehow I just got a summer job there doing stuff. They got one of the first computers, where you went through punched paper tape. It's so old that it was the place where you programmed by looking at the punch holes on the paper tape.

And we did a little bit. They had gotten this funny thing in this language called Fortran. And they just let us play with it a little bit. So that was my first exposure to computing.

And after that, didn't actually do that much. And when I came to MIT, I came to major in mathematics as a graduate student. And about the third week I got there, the Students for a Democratic Society at MIT had a demonstration. And they took over some buildings.

And in particular, they took over the president's office. And they held open house in Howard Johnson's president's office. And I said, oh my god. Here I am, a brand new graduate student at MIT. When would I ever, in my life, get a chance to see the president's office?

So I walked in, and there was one of my friends who I went to high school with. And we said hi. And he said, what are you doing? And I said, I'm looking for something interesting to do. Do you know an interesting place that I could find something-- that I can do something? And he said, well, why don't you go to this place called the Artificial Intelligence Laboratory?

So I walk over there, and there was a talk. There was a talk by Seymour Papert, who was a math professor then, and Cynthia Solomon, who was sort of his assistant in running the Logo project. And he gave this talk and showed off the turtle, the floor turtle and those things.

And it just blew my mind because what it said to me-- as a math graduate student, these math ideas that I really, really loved and I thought were so beautiful are a thing that actually could be communicated and used by children. And that was the key.

So I went to this talk. I think the title of the talk was "Teaching Children Thinking." Again, remember the whole idea is about, what's intelligence, right? And I said, gosh, I would love to work in this. So I walked back around the AI Lab, and I rode the elevator up. And the elevator door opened, and in there walked Seymour Papert.

And he said, who are you? And I said, I'm a new graduate student. And he said, what are you doing here? What would you like to do? And I said, well, can I work for you?

SARAH HANSEN: [GASPS] Wow.

HAL ABELSON: And he said, oh, sure, you can work for us. We've got this project we'd like to do where we have this brand new display that can run remotely. And we have this turtle. Would you like to make a turtle thing that runs on the display? So that's how I got started in this.

SARAH HANSEN: Wow. I mean, one elevator ride.

HAL ABELSON: Oh, yeah. I keep telling that, by the way, to students here and in lots of places. There is so much stress these days in students going all the way back through junior high school. And certainly, there are students who show up at MIT, and they've completely figured out what they want to do.

And that's a little sad for the kind of talent we have here or the kind of talent that's around anywhere. They seem to be so fixed. And I'm an advisor to students. They've already figured out what they need to take junior year or senior year. And that's just really sad because there is so much raw talent here it's incredible. They could be doing anything.

SARAH HANSEN: Yeah. And also, again, this points to the power of human connection, being with others, riding up in an elevator that could change your life. We need people.

HAL ABELSON: Yeah. I mean, I love to tell that story especially to my freshman advisees to say, there is a lot of room for randomness and lots of things happening. Don't try to plan everything else, and just realize that you are so talented that you can make it in lots and lots of areas. Find something that you really think you're going to love and want to work on.

SARAH HANSEN: Yeah. Well, I would be remiss if I didn't ask you just a little bit more about your role in starting MIT OpenCourseWare. I'd love to hear a little bit about the critical decisions you are making about democratizing education back then and then where you personally would like to see OCW going in the future.

HAL ABELSON: Oh, OK.

SARAH HANSEN: Yeah.

HAL ABELSON: Starting around-- well, right before 2000, there was, of course, a lot of stuff about the internet. At Laboratory for Computer Science, there was a lot of the research in MIT getting on the internet and doing the things. And now it was becoming that people were noticing and noticing.

And Chuck Vest, president of MIT then, would tell the story that he'd go around giving talks to groups like MIT Alumni and things. And he'd get these questions like, there is this internet. What's MIT doing about it? So this is to the president of MIT.

So they formed a thing-- he and Bob Brown, who was provost then, who's now, I think, just stepped down as president of BU, started a thing called the MIT Council for Educational Technology. And for some unknown reason, they asked me to chair it. And it was about, what's really worth doing as an MIT initiative?

SARAH HANSEN: Well, there's that question. What is worth doing?

HAL ABELSON: Yeah. So what everybody was doing then-- universities had decided that this internet thing and being able to do things was going to be a gold mine. And what they were going to do is record all of their courses and put them on the internet. In that case, it was videos. It was something called MOOCs, which are still around-- massive open online educational.

But that was going to be the university gold mine. We're going to take our courses and put them up for alumni and industry and everybody. And this was the path to the future. The question is, OK, is MIT going to do that?

So our council started talking about that. One of the intelligent decisions we made is that we hired Booz Allen as consultants, who actually did a real study about this thing and found out, you know, for the amount of money it costs to put this thing on and the number of MIT alumni, which is a lot, but not at the scale we're talking about, this is not even-- doesn't even have a chance of breaking even--

SARAH HANSEN: Oh, wow.

HAL ABELSON: --if you're thinking--

SARAH HANSEN: I didn't realize that.

HAL ABELSON: --about money.

SARAH HANSEN: Wow, OK.

HAL ABELSON: So we sort of ground on that a little bit and saying, what are we doing? And then there's a guy who's still on the faculty, but I think just stepped down, named Dick Yue. And he was assistant dean, I think, of engineering. I'm not sure. But he was on the council too.

And he talked about going to the refrigerator at night and thinking about this and thinking about this. And suddenly, it occurred to him, why don't we just give it away? And then came back-- we talked about it in the council. And we said, you know, that's not such a crazy idea because if we give it away, we can use it as a source for funding.

So this was even imaginably practical. And it was totally in the opposite direction from which all of the other universities were thinking of that. So again, it's not that MIT doesn't want money, but we actually like it as philanthropy.

And the other nice thing about MIT that's really, really true is the MIT administration is very, very good at promoting good ideas. So we weren't sure whether we were making a joke or not when we said, give it away. And Bob Brown and Chuck Vest grabbed on this, and they said, wow, that is a really, really good idea.

So they went out, and they promoted it in terms of MIT, got the initial grant from the Hewlett Foundation and the Millet Foundation. And that was the beginning of how OpenCourseWare worked. That's how it got off the ground.

And then, of course, the idea was that it was really exposing MIT educational contributions to the world. And as part of that, we really meant the world. So part of that is that it was free.

And I know that persists in OpenCourseWare to this day. And it's always been MIT seeing itself as a world resource, not as a special kind of business that does things. So again, I think that's the core thing of OpenCourseWare, that it really, really, really is for the world. And then the second thing, of course, it becomes an opportunity to show off contributions of MIT faculty, which are just very, very good, of course.

So my hope for OpenCourseWare is that we figure out how to expand more and how we inspire other institutions to do the same kind of thing. And from my view, there aren't enough of them. I was talking yesterday to someone who has just been hired for OpenCourseWare to think about collaboration with things. And we need a much better thing to involve other institutions in the kind of thing that we're doing to set out that kind of worldwide educational resource.

So that's my, really, hope for OpenCourseWare. I'm on the MIT Faculty Advisory Council. I'd like to advocate for that, and I think a lot of people would. But again, it's a thing that really, really needs institutional support at the highest level because it really is a big commitment.

SARAH HANSEN: Yes.

[MUSIC PLAYING]

Thank you so much for--

HAL ABELSON: OK, well, thank you.

SARAH HANSEN: --joining me.

HAL ABELSON: It's been a real pleasure.

SARAH HANSEN: That was Hal Abelson, a true pioneer in democratizing knowledge. You can find his work and teaching materials on our MIT OpenCourseWare website. As always, they are openly licensed, so you can reuse and remix them in your own teaching. You can help others find the materials too by subscribing to the podcast and leaving us a rating and review.

Thank you so much for listening. Until next time, signing off from Cambridge, Massachusetts, I'm your host and Logo aficionado, Sarah Hansen from MIT OpenCourseWare. MIT *Chalk Radio's* producers include myself, Brett Paci, and Dave Lishansky. The show notes for this episode were written by Peter Chipman. Jason Player made our episode cassette animation on YouTube. We're funded by MIT Open Learning and supporters like you.

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