LINDA ROBERTS Ed.D.
ORAL HISTORY

COMPUTERWORLD HONORS PROGRAM INTERNATIONAL ARCHIVES

Transcript of a Video History Interview with
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DKA: Linda let's start with your background. Do you want to describe your background before coming to the Department of Education, the various things that you have done?

LR: I am a former classroom teacher. I began my life in education as a second grade teacher in Brookline, Massachusetts. Then I taught in Ithaca, New York, and then in Oak Ridge, Tennessee. I moved from classroom teaching to become a reading specialist, eventually to working with teachers and a professor in teacher education, and then as Academic Dean of the University.

When I came to Washington, I ended up in government, not teaching, much to my surprise.

DKA: I want to ask you a little about your classroom teaching. Did you stay with the elementary focus throughout your career, or as you went to university, did you move into other areas of your career?

LR: I mentioned teaching reading, being a reading specialist. That led me to work with older students as well, including adults in the evening. So there was a whole range of teaching I did in the whole area of reading. I would work with young kids and then I worked also with adults at the same time.

DKA: Did you become involved with technology in learning in your work with reading, or is that something that you just pursued?

LR: My first foray into technology was to help think about how television could be a medium for reaching, particularly, for reaching young children and helping them become ready for school. I was invited to come to a planning meeting for three days in New York City. I worked with a group of television producers and experts who were in the fields of writing, psychology, reading, and all aspects of early childhood education.

What we worked on was the design of *Sesame Street*. I was at that point a classroom teacher. I was teaching in Oak Ridge, Tennessee, and the ideas that I brought to this endeavor were, what students needed to know, and how you could use this wonderful world of sound and music and graphics and film, to engage kids, to help them become excited about learning.

DKA: Tell me a little about the people that you worked with, and the environment in which you worked where the ideas that gave birth to *Sesame Street* were generated.

LR: The effort was headed up by Joan Ganz Cooney. It was such a wonderful mix of people. It was people like Jim Henson, who clearly was not into education but was concerned about kids, and motivating kids. It also involved people like Maurice Sendak, who was a writer, a number of other teachers, librarians, George Miller, a very noted psychologist and linguist, and lots of television producers. Dave Connell and Sam Gibbon, both of whom who had been involved in *Captain Kangaroo* before they got involved in the design of *Sesame Street*. The question before us as we were brainstorming these notions and these ideas was, "How do we teach in this new technology medium?" We know that kids watch television, and some seem to learn without direct instruction. We knew that they got information from television, but most of the models for that medium were entertainment. So the interesting question was, "How can you take the power of this entity, this medium, and also turn it into an educational resource?" I don't think that any of us at the time really knew what *Sesame Street* was going to look like. In fact the *Sesame Street* programming ideas were tested over a two-year period. There were a lot of things that were tried that didn't work well. But there was this notion that you could use the creative power of the medium and combine it with what kids need to know, and help them learn.

It was amazing, when I saw the first production of the program, and actually saw some of my own ideas actually played out in the real world. For example, as a teacher, I always believed that you could get to some kids by using music. I could never sing. I still can't sing, but if I could sing, I would sing about the letter sound relationships. One of the other ideas I had was a song about street signs, because I thought that if you could capture the environment of literacy, the literate environment that is out there and bring it into the hearts and minds of kids, you could get them interested in reading. So one of the most wonderful songs that *Sesame Street* had was a song about street signs. I didn't write it, but I think I helped generate that idea.

DKA: So as you look back, what do you think is one of the more innovative ideas that has come out of Sesame Street, particularly as it relates to television and technology?

LR: I think the ideas, the substance of learning really did come out on *Sesame Street*. There was a full curriculum (reading, math, social growth, etc.,) that drove the sequences and content of every show. It wasn't just that you could use this media to capture interest, to capture attention, but you could take content, you could take information about the world, and you could put it in forms that kids could understand and identify with; the world of ideas, the world of literacy, the alphabet.

The thing that *Sesame Street* did so well was to put it into terms that children could understand and identify with. Whether we're talking about Elmo or Big Bird, those are very important characters that convey information to kids, and are viewed by kids as, quite frankly, people that they know and love and understand.

DKA: That's a pretty big jump from *Sesame Street* to the Office of Technology Assessment. What was the transition you went through from classroom teaching and the university to working for the Congress?

LR: Actually the transition involved the federal government, because when I came to Washington, having had twenty years in the field as a teacher and a university professor. I thought I was going to continue to teach. As luck would have it, I couldn't find a job when I first got here. The local school systems told me I was overqualified to teach, and there were no available university positions. I happened to find out about a program that focused on educational policy in the Department of Education that was aimed at bringing educators who had lots of field experience but not policy experience into the fray. I became an IEL Policy Fellow here in the Department of Education. It was *Sesame Street* and the *Electric Company* that made me so appealing to the Department, that's what they wanted. They wanted someone who knew something about technology, and I joined the program in technology.

In my second day here as an IEL Fellow, I was asked to "edit" an RFP that was to be issued by the Office of Libraries and Learning Technologies, where I was assigned. This RFP was going to transition between broadcast television and new technologies. My boss said to me, "I want you to take this RFP, and I want you to make this real. I want you to turn this into something that will work because I don't understand this." Whoever had written the RFP has written it in very jargon-y terms and the statement of work seemed to miss the mark when it came to innovative development of both video and new technologies that would engage elementary and secondary school students in science and mathematics. We, the Department of Education didn't quite know what the potential technologies were that could be utilized. We knew that broadcast television had to be a component, but we speculated in this RFP, that we might want to encourage the development of computer software as well as interactive videodisc applications. We literally left the proposing up to the proposers. It was the right way for the federal government to, I think, solicit work in this area.

We got amazing proposals. The thing I learned in this whole process was that he who could write, or she that could write, made government policy. Because what was policy? It isn't something that is abstract. It's a set of decisions you make about how to spend money, and because I had the ideas that could be written clearly, and could be conveyed to the public and potential developers of these resources, I was really making policy. It turned out that what this RFP led to was the *Voyage of the Mimi*, which has been one of the most successful programs, and efforts with the Department of Education, ever funded. I did that the second day I joined the government.

I was very pragmatic. I wanted to engage the creative genius of the television producers and the software developers that I thought were out there. I didn't think we should tell them how to use technology. I thought that what we had to do was make clear what our educational needs were, what our educational goals were. We needed to give them the freedom to tell us what they would do and how they would do it.

DKA: So you were here as a Fellow, and then you went…

LR: I stayed in the Department for two and a half years, and then my time was really up. My time was up after the first year but I stayed a little longer. I just let people know that I was leaving and a day later, I had a call from the U.S. Congress, Office of Technology Assessment. I went to work for OTA on education related issues, which at that point were focused on higher education and research and development in information technology. I worked on a study that examined new developments, particularly in microelectronics and information technology research and development, all very advanced technologies. The question that I addressed in this study was what role could universities play, working with the private sector to advance telecommunications technology.

From there I worked on a study dealing with intellectual property rights, all the contentious copyright issues. That was really a wonderful learning opportunity. I had a chance to look at how new digital technologies enabled both the creation, distribution and promotion of content and the lives of artists and musicians and writers. I was able to tell a good news, bad news story. Essentially these new technologies were so stressing the intellectual property rights system that the reaction was to say, "Let's stop all this from happening." What I was able to do in this study was to point to the positive things as well as the negative things.

Then, Congress started to get very interested in education. OTA had a request to look at "all these computers that were coming into the schools." In 1986 I directed the assessment, trying to help Congress understand whether or not this was a good idea, and if technology was useful, what was it most useful for? For 18 months we conducted research, traveled to schools using technology, interviewed educators, academic experts, held seminars and workshops, and talked to industry. The resulting report was called, "Power On." The title was right, and it really captured what we believed the technology was all about. It could turn on power in education. It could turn on kid's intellectual power. It could empower teachers. We were just beginning to see how computers might be resources for learning, and it was very important to identify the places where the really imaginative and creative and teachers were doing important things with technology.

The technology examples in 1988 when the report was completed, pale in comparison to the technology we have today. I was thinking about that this morning and I will give you an example. I went to five different school systems around the country. This is a, I think, a hallmark of my work. I don't think you can read about technology. I don't think you can talk about it, most times. I think you have to go see it. You have to experience it. You have to go look at the kids and look at their teachers and spend time in classrooms and understand what is different, what's really happening here. So one of the places I went was to Silicon Valley in California because we had heard at OTA, that that's where the bubble up was happening, teachers were really making tremendous differences.

There was a group of teachers out there who had coined themselves as Computer Using Educators. I contacted Bobby Goodson because she was a real pioneer. I said I wanted to come out and visit some schools and I want to see what's really happening. I wanted to understand if it was for real or if it was just all hype. So one of the schools I went to was in Cupertino, California. I was in a junior high school. I'll never forget this, there I was with kids who were programming, essentially programming TRS 80's and other machines. And, it wasn't so much that what they were doing was phenomenal, because it really wasn't in retrospect. What was phenomenal, was the way which this technology really engaged kids and turned them into problem solvers.

I can't help contrasting those kids and what they were doing, which now seems unsophisticated, with the kids I visited a month ago in Des Moines, Iowa. These students were pulling data off the Internet and they were analyzing data. They were literally creating a whole new body of information, not from textbooks that were ten years old, but from online resources that were ten minutes old. I thought to myself that things have really changed for some of our kids. Not for all of them, but we've got just an incredible set of tools out there that are about content, and about substance, and about thinking, and goals, and about the world in which we are living.

DKA: Can you talk about the transition between OTA and the creation of this position in the Department of Education? You are the first to hold this position. Can you tell us what led to it?

LR: My present position is brand new. I believe it was influenced by legislation being considered by Congress on the Hill. I was contacted by the Secretary of Education, Richard Riley, long before the legislation passed, however he had already decided that technology was an important issue for education. He looked at the resources in the Department and wanted to bring somebody in to provide leadership in this area. The story that is told is that his Chief of Staff then proceeded to drum up names and ask for candidates.

To their credit, they wanted a substantive person. They wanted someone who really understands where schools were and understood what the industry was trying to do, and really had some ideas about what the Department should be doing. According to Billy Webster, my name came up again, and again, and again. So when I came to talk to the Secretary, we talked for about ten minutes and I said, "I'll do it."

DKA: What did you want to accomplish? Did you have major goals you brought into the job?

LR: What I wanted to accomplish was to bring technology to the forefront and have it viewed not as something that would be nice to have in our schools, but in fact something that would be absolutely critical and essential to achieving a world class education for every child in every school in every school in every community in the United States. To do that, I had to present compelling evidence that in fact these technologies were making a difference already, at least in some schools, for some students.

Secondly I wanted to work with the community of educators and the community of creators, because it's a partnership here that we are talking about, to define a vision of where we want to be in the next five years, and then to work toward making that happen.

Third is a matter of investment. I think the federal government does have to make a strong investment, certainly an investment in research, certainly an investment in some risk-taking to uncover what's possible, certainly an investment in teachers, providing the resources and training to help them define better what they want to do with technology. But it's also an investment in policy. Sometimes it's not the money that we put on the table that will make the most difference, but rather it's the policies that we put in place that really move the agenda forward. One of the areas I believe we have to work in is the whole telecommunications policy arena. To be there, to articulate where the community of educators are, what their needs are, and to be I hope as forceful as the business interests are, in defining the telecommunications policies that this country is going to adapt and accept.

We haven't had a telecommunications bill passed for fifty years. I think we are going to have legislation in this Congress, and my hope would be that this legislation would take into account both the opportunity for using technology, to enrich the lives of all on earth, and to empower teachers to do good things, to teach in very way possible. Also this telecommunications legislation needs to support the economic growth and development that it seems to be is going to be critical to maintain leadership in this area for the country as a whole. I think the policy side is very important and it's a legacy that I would like to be known as having left behind.

DKA: You talked a little before about some of the evidence you saw that this type of technology truly helped all students. Could you tell us more about why you think that evidence is so compelling?

LR: All I can do is give you the examples. The evidence shows that technology works under the right conditions. The compelling evidence comes in a couple of ways, and I can only do it anecdotally because research data has not caught up with what is happening now and because we are in the middle of a "natural experiment" with computers and learning. I think of the students in the heart of the ghetto in Union City, New Jersey, who have for the last two years have had access to the computers in their classrooms and computers at home. Now, the focus in their school has been on writing, and reading, and language arts, and communication and substantive use of technology to enhance those kids' skills. After two years, those students whose school was at the lowest level of achievement of any school in that district, those students are out performing everybody. They are doing it because they have literally been empowered by the tools that have been put in their hands in school and at home. The evidence comes not just from their test scores, but from the fact that they literally doubled the time that they are spending on reading and writing and doing research and thinking about information in much more compelling ways. So you've got the performance level with these kids, and then when you talk to them, you ask them about where they see themselves. And it's clear that the technology has allowed them to get beyond the four walls of their classrooms, and beyond the immediate neighborhood of their school, which is really quite frankly not a place where you or I want to be. They are part of a larger world of students and classrooms, and they are linked to classrooms around the globe through this technology, and they know that they are students of the world. They talk that way, and I don't think they would have talked like that three years ago. I know they wouldn't. They talk about how the technology has changed their lives, about why they have to come to school. They want to come to school. They can't just read at marginal levels of performance. They know they have to read at the highest level possible. And this is reinforced every day in their lives in everything that they do. So that's just one example, but it's a very powerful one.

On another occasion I had the opportunity to visit a high school in Des Moines. I spent time with different groups of students, teachers and the high school principal. One of the classes I visited was a Physics class, but it wasn't the kind of Physics class you and I took. It's a class of students who are not going on to college, I'm sure, who were in the "vocational" education track, but there they are doing Physics to solve problems. They were designing cars, using physics principles. This was so neat. Their lab in the school was a Cad-Cam Lab with many different software applications. The location and the principal explained that in today's world, her students would be far better prepared for the future if they would learn these new technology skills.

I think that's really wonderful because these students in particular need to be exposed to mathematics and science just as much as much as any other group of students. Here is this school that has really made an investment in technology largely with small grants and local business support, and the teachers are just so emboldened by what they are doing. They believe what they are doing is important.

Also, the library at this school stays open one or two nights a week, mostly for people in the community who come in and use the school's connection to the Internet to do research. The school pays for the nights for the library to stay open with revenues from the Coke machines in the building. That's how they pay for it. They don't have a budget item that allows them to keep the library open at night. This is the tragedy of education.

DKA: Let me ask you about your example from New Jersey. You talk a lot about computers in the home and in school. In what way do you think this new technology is helping to bridge that gap between education that happens at home and education that happens at school?

LR: We're really at the early stages of seeing that happen but if we can extend the time for learning, literally not have school and learning end at three o'clock, then I think there are all kinds of opportunities to make the connection between both standard curriculum and what I would like to think of as non-standard curriculum.

The Union City project I was describing is really unusual. Where most kids have computers at home, it's because their parents thought it was important and bought them. So what this means is that we are likely to face in this country a growing gap between kids who have all kinds of technology at home and in school, and kids who have virtually very little if anything at home, and in all likelihood, marginal technology at school. We have to really be concerned about the economics of what's happening, and the social implications of what seems to be happening in a world where those who have technology are the ones who can afford it, and the ones who don't are the ones who can't afford it. If you take the laptop with you, then it means that you can more easily learn wherever you are. You can also pull in information if you are linked through the Internet. It's making the resource just more fully available. I think that's what we are talking about here. There are a number of school districts that are thinking about how, for example, they can use the local cable system to provide, at the very least, a homework hotline to students. So when they go home and have questions they can call into the local cable and there is your teacher, or someone else's teacher who is there to help you to work on some of the things you have been assigned to do at home. This whole notion of where's the library, where's the information is going to change, and I can get it wherever I am, anytime, any place. It's going to be an important opportunity.

I want to tell you about another project which happens to be in, again, New Jersey. A friend of mine who works at Bell Labs is linked to about two hundred students through a statewide science initiative, and he does most of his interaction with these students at night. When he comes home he turns on his computer. He reads his email from students. The students are all involved with projects for the science fair. He answers their questions, and always ends up asking them another question to challenge their thinking, and as he says, to help them understand that in science there are always more questions. Email keeps him connected with the students, and they with him, in a continuing and powerful way.

DKA: You're leading into the next question, which is, you talked a little about connections between home and school, but what about schools doing a better job of preparing students for the world of work? Does this technology change significantly the ability of educators to move in that direction?

LR: I think if there is any area where there is a broad consensus about the power of technology and the reason for the technology, it is this whole notion of preparing for the future, preparing for the future world of work. We know that what is available in our schools just really is so much less than the technology that is being used in almost every other aspect of society; the workplace, whether it's a factory or an office, or it's a business or it's a service provider. So the notion is that kids have to be using the information tools as they are learning because these are the tools that they are going to be using over their lifetime. The notion that you learn everything you need to know in school doesn't work now, and it certainly isn't going to work in the future. We want more than exposure to technology tools. We also want them to develop the skills, the problem solving skills in particular, which will serve them well over the rest of their lives.

DKA: There has been a lot of debate in recent years over the role of the federal government in setting standards for various aspects of education. Does the federal government have a role for setting standards for the use of educational technology, and what would those standards be, how would they function?

LR: There are institutions that set standards in education – primarily at the state level, State Boards of Education, and at the local level, School Boards. Federal government efforts are relatively new, and involve experts and practitioners working together to set benchmarks for learning in different areas of the curriculum. What is it that you would hope that every fourth grader, every eight grader, every twelfth grader, would be able to do in the area of science, in the area of social studies, in language, in writing, in reading? How you get to those benchmarks is something that has to be done at the local level. In fact how you get there is pretty much in the hands of teachers and students.

So the question about standards for any area, but just equally for technology, has to be a process of consensus building. What we're really talking about are skills, not necessarily specific technology. One of the skills that we would like every student to have is related to the way in which they appropriate information, use information, gather information. I think those are the kinds of things that people would be very willing to talk about and come to agreement on. I think that the use of technology ideally ought to be embedded into the substance, the content of what we want students to be able to know and do. I don't think you want to talk about technology in isolation. You want to talk about it as a set of resources and a set of tools that are connected to the kinds of things we want students to know about their world. That's how I would approach the standards issue in this area.

There are a number of groups working on this. Virtually every school district that has developed a technology plan has a set of goals and objectives around the use of technology. In every single case, those goals and objectives are focused on what they want their kids to know so that they will succeed in the world. That's what they are about. I think that's entirely appropriate.

DKA: There is a tremendous amount of interest in the Internet, the growing world of information online. How important is that to education and how do you see that resource unfolding over the next few years for the educational community?

LR: If anything has captured the imagination of both kids and teachers in the area of technology, I think there's nothing more compelling than the Internet. There's this notion that there are people, there's information, there are resources that I can get to, literally, through my fingertips, through my computer and telecommunications. The growth of the Internet overall has been nothing short of phenomenal, the number of Internet sites, the host, the nodes and users. The Department of Education and my office are tracking the extent to which our public schools have access to the Internet. The good news is that more than a third of the schools already have some access. That might mean that it's in the library. It might be in the principal's office. It might be in some of the classrooms. The bad news is that if you actually go out into the schools that have this access, and you ask where the access is; is it on kid's desktops, is it right there in the classroom, the answer in most cases is that it isn't in the classroom. It's somewhere else, and only about three percent of our classrooms have real access. But in classrooms that have access both kids and teachers are literally explorers. They are much more engaged and less concerned about, "Am I going to do it wrong," than they were ten years ago when we first brought computers into the classroom. They are really looking for information. They are looking for resources, and there is so much out there to work on and discover.

I was just with a group of fourth graders. This just blew me away! These were fourth graders whose teacher had encouraged them to spend time on the Internet, and who had really spent time helping them learn how to navigate. These fourth graders by the way have their own home page on the world wide web, so that tells you about their level of sophistication. One of the projects they are involved in is a project with a sister school in Kobe, Japan. Now think about that. So what happened when the earthquake occurred in Kobe? These kids were online with the kids that they know in Japan less than twenty-four hours later. Fortunately for those particular students that were in the school that they were communicating with, they did not experience the kind of damage that had been experienced in a large part of the city. But here were students talking about an event that was really earth shattering. They were gathering and sharing ideas and talking about not just what happened, but how does this affect your life? The kids in this class were thinking about these issues in very different ways than most other kids were around the country. What a powerful experience for them. It's something they will never forget.

That can happen to everybody. That can be part of the learning experience. I think we learn when we want to get to information that means something to us. We learn when we want to master skill that allow us to do things that we want to do, whether it's communicate or it's to build something. I think what the Internet does for a lot of kids and teachers is it puts them into the role of the user and producer. I think a lot of what's happening on the Internet is production. It isn't just appropriation. It's real production of information and resources.

This is a very exciting time, and based on our conversations with schools around the country, I think we're just going to see phenomenal growth over the next eighteen months.

DKA: You talked earlier about your concerns from a policy standpoint, about making sure that educational goals are as strong as commercial goals. As we see the Internet develop and a national information network develop, how do you see us making sure that those educational goals, the ability for schools to have access at prices they can afford, the ability for other educational institutions to get the information they need, what is going to be the policy mechanism to ensure that the educational aspect of this remains foremost?

LR: I think there are a couple of policy mechanisms at our disposal. The first and foremost is to really make sure that we tie the use of technology to the goals of learning, to the goals of education. We could go down the wrong path. We could say right now that everybody has to be connected. We might spend a lot of time investing in the pipes, the networks, the hardware, etcetera, and we need to think about why we want them connected, what we are going to use these for? There are lots of different reasons. There isn't a single best reason.

The first strand in thinking about this is the planning, and thinking about planning for the use of technology in an enlightened way. Education should be driving the investment for our schools, not technology driving the investment.

The second element that we have to be concerned about is access and affordability. I think that's an area where we can work with the private sector. I hope that we can. I believe that we can! I have had numerous conversations with executives in the cable and telephone and utility businesses, all of whom understand that it makes good public policy sense to bring resources to all schools, not just to some. They also understand that ultimately the better educated our kids are, the more likely they are going to be able to be gainfully employed, the more likely we are going to be able to grow our economy, the more likely they are going to be consumers that are going to buy this whole new range of resources that are going to become available. I can't tell you how many conversations I have had where I am absolutely convinced that if we build the right kinds of policies that allow industry to both compete and provide resources, we will solve a lot of our problems.

The third piece is that I think the education community can be a better market for technology. By that I mean that we have to look at how we are spending our dollars today in education. We have to ask ourselves whether there are ways we can reallocate some of these educational dollars to invest in the tools and resources and the content and the software, to get a base of investment to create the market and the demand, that will allow the creative genius of the commercial sectors to go forward and produce high quality resources for learning.

Where we are right now is at a real turning point, a real transition point. I think that we, the educational community, have to communicate that we are serious about technology; that we value it and we are willing to put our dollars on the line for it as well.

DKA: We have talked quite a bit about technology's influence on students. Let's talk about the impact on teachers, and how the Department of Education sees how technology can be harnessed to empower and enable teachers.

LR: I think teachers are absolutely key to everything we want to do. What is particularly exciting about the technology is how it changes teachers' roles. Everywhere I have been, when I talked to teachers who are using computers and interactive multi-media, or are on the Internet, or are part of a distance-learning project, what you get is this sense of real renewal, and empowerment and a feeling of being more professional because of the technology. This is particularly true for classroom teachers.

Classroom teachers are very isolated professionals. In some ways it's kind of the old notion that the best classroom we ever had was the one room school. Well, that may be true if you were the student in that school, but if you were the teacher in that school you were mighty lonesome. Even today most teachers work in the equivalent of the one room schoolhouse. They are very, very isolated from their colleagues and their peers. Teachers are talking to each other over the Internet in on-line forums and discussion groups. The technology is really empowering them to do things that they just couldn't do before. My sense is that most teachers who get to use technology really are excited by that. They are empowered. They are enriched. It frees them up. They feel like they have more things to do, not less things to do, and that their role is more important, not less important.

I was just thinking about teachers I talked to in Indiana. I did a really wonderful thing. Instead of going from region to region across the state, which would have taken days, I stayed at Indiana University and held a series of town meetings, all day long, over the Indiana Network. It was fully two-way so we could see and hear each other no matter where everybody else was. The State Commissioner of Education and I met with teachers over the network in five different locations all around the state. They all talked about how they were changed by information technology. One teacher told us what was different. He said, "I want to tell you about this," and he held up a text book and he said, "it used to be that everything that I could do with my kids was in this textbook, and whatever was inside this head of mine. It's a whole different world now. I don't have to rely on a textbook. I don't even have to rely on my own head. I have everybody else's head to bring into the process. My kids are connected to a much better range of resources. I feel that I have so much more at my disposal." This is a teacher who teaches government and the constitution, and he was describing how, literally he and his kids pull off information from the Library of Congress on the latest bills, the latest legislation. He was like a little kid talking about his teaching, and I think the technology was very much a part of what he was trying to do. In fact it was very much a really critical resource at his disposal. He was delighted that he had those tools. He really was.

DKA: That leads into the next question I want to ask. The Computerworld Honors them this year is, "The Passion to Create, and Power to Inspire." It seems to me that really fits very well with so many things we have talked about today. When you, as a Leadership Award recipient this year, think about the power that you have to inspire other people, what type of future do you see for people who are interested in the application of information technology in the field of education?

LR: I think we are only at the beginning stages in terms of what we can do with these technologies, and how we can really significantly expand the opportunities for learning. I have been so fortunate in that I have been able to go around the country, visiting schools and talking to students and teachers. I see these students as our future creators of technology. They are already so involved with information technology.

It's so much a part of the air they breathe and the lives they live. They are really creative kids. I think kids are more creative than they have ever been before. I think what we have to do is tap into that creativity and also make them serious and substantive at the same time.

I have also had the opportunity to visit with software developers and the producers of new tools and resources, and what has been very exciting about a number of the companies I have had the chance to work with is that I find former teachers in many of companies. What that says to me is that we have found a way to bring educators who have been very much involved in the lives of kids, but who are ready for new roles as well, to bring them into this information technology world and use their knowledge and expertise, but also give them new ways to teach. I think if you are a producer of software, you are as much a teacher as I am a teacher, or as my colleagues are teachers. So we have so much that we can use well and wisely, but we also have very powerful tools that we could detract from learning! We have to make the choices.

I am very optimistic. I see a whole new set of tools to communicate, to literally help our society better explore issues that are difficult to understand and work with. I see a whole new set of people out there who are creators, really creators, and more of them are creators because the technologies we have today and the technologies we're going to have in the future, I think are going to be more democratizing, empowering technologies than the ones we have had in the past. From the little portable camera in your palm, to the laptop or palm top that travels with you wherever you are, to the online database that allows you to connect in the United States to libraries around the world. Those kinds of resources really can make a difference in the quality of our lives. I'm pretty optimistic about the future. I believe that our future rests very much on a highly educated, empowered citizenry.

DKA: I think we have covered all of my questions. Is there something else you would like to talk about?

LR: We all have benchmarks in our lives. During my first year of teaching, I was very fortunate to teach an incredible bunch of students, precocious kids, one in particular, who every day, at the end of the day, would tell me whether or not I had had a good teaching day! She was eight years old in 1963. She's my benchmark. I'm always thinking about this student as I think about what kind of a world we want for all of our students. She was one of the most gifted and talented students I ever taught, but she was not an "A" student. She was an incredibly creative thinker and her love was drawing. I couldn't engage her with textbooks. The text was not the way to get this student excited about ideas. A lot of our students are that way, and today with technology we have so many more choices and avenues into our students' minds.

I keep thinking that we've got to be reminding everybody, reminding the public that we want to keep investing in those tools that empower the mind. I think that what we need then are more compelling examples and more experimentation. I think we need to do a better job of highlighting what we're doing well and we need the help of both the industry and the educational communities to do this. But I go back to this one student who often told me that I could do a better job, and I guess the message is, we can all do a better job. And that's what we should all keep working towards.