

## Carl Bereiter

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### Video 1

AUDREY AMREIN-BEARDSLEY

Welcome, everybody to *Inside the Academy*. This is the second official shooting of this show. This show is based on the Bravo Network's *Inside the Actor's Studio*, if any of you have seen those, and we conceptualized this about two years ago and thought wouldn't it be wonderful, as *Inside the Actor's Studio* does to honor the best in the field of entertainment, to honor the best in the field of education. And so we started this show, our pilot was last spring, and we did our pilot show with David Berliner. And our second guest today is Dr. Carl Bereiter who is part of, he is a member of the National Academy of Education. He's had quite the experience and impact on educational research and our field. And so he our second honored guest, and this is the second shooting of the show, and I thank you very much for coming today, and we look forward to a great show. Okay, so this show is going to go in six sessions. The first is "Becoming (1:00) Carl." So, we're going to talk about Carl's background. The next is "Becoming Dr. Bereiter" talking about his education background in terms of where he earned his PhD and his initial impact on the field. The third part of the show is his significant accomplishments, which are quite few, so we're going to touch on as many as we can given the time limitations. And then we have a series of philosophical questions that Carl will be presenting to us his words of wisdom, which is personally my favorite part of the show. And then we'll have the audience questions that will follow that. Okay.

AUDREY AMREIN-BEARDSLEY

Okay, where did you grow up?

CARL BEREITER

Most of my growing up was in Wisconsin, right near the Illinois border, but from my first, from the age of two to four, I lived on a farm outside of Waukegan, IL. (Looking at pictures) Ah, yes, that's it. It was straight out of *The Grapes of Wrath*. Yes.

AUDREY AMREIN-BEARDSLEY

Why is that?

CARL BEREITER

Uh, well, we were extremely poor. This was the depths of the depression. Everyone was unemployed, virtually, except for (points back to pictures), you trimmed, you trimmed off the two people that had a job. They're instantly recognized by their dress. Yeah, my father had been at (1:00) a new car business with a, I think the car was called an Oakland, anyway, it's one that doesn't exist anymore, yeah, they faded that. And, uh, so he came back from that, and bought a horse and a cow, and the horse died, and we were in pretty bad shape.

AUDREY AMREIN-BEARDSLEY

Tell us about the experiences in the two-room country school that you attended.

CARL BEREITER

Well, you know, it was, I thought, a wonderful education considering the limitations. But, just because there were four grades to a room, and they had to rotate classes, and so on, there was a lot of free time. Much of it, in the upper grades, I spent in the library, or (2:00) we produced plays, I remember writing one. It was “shoot-‘em-up Western.” Everyone brought their BB guns to school, and the teacher confiscated them, and the desk was piled high with armament. We, yeah, I don’t know, a culture developed there that considering it was a very poor, rural area, nobody there had ever been to college. Not even the teachers. They had been to normal school. So, it was amazing that such things went on. Anyway, I felt that I learned a lot—a very little of which was taught. You know, it was picked up. It had a terrible library (3:00). I mean, it was just whatever books people gave to us; but it was worth prowling around in.

AUDREY AMREIN-BEARDSLEY

Who was Flossie Dousse?

CARL BEREITER

Flossie Dousse was my sixth grade teacher. And she was a real departure from the convention. She tried new things, she horrified the parents in the area by driving very fast in her Ford V-8. But, she, she gave me a lot of opportunity. I had, I was in the sixth grade, but I had started reading real newspapers, and the social studies offerings there were pathetic. It was something called, “My Weekly Reader.” Which covered the (4:00) news, but it presented it so impartially that the only impression that you would carry away with it was “this issue cannot possibly matter” because everything so perfectly balanced. But then getting into a newspaper where you found out, you know, really people feel pretty strongly about some of these things. That was that. So, she let me move into the eighth grade social studies class because that’s where they dealt with current events. That would be hard to do in an ordinary, in a regular school. But, no problem at all in this four classes to classroom.

AUDREY AMREIN-BEARDSLEY

This is your sister, Joan, your younger sister, is that correct?

CARL BEREITER

Yes.

AUDREY AMREIN-BEARDSLEY

Joan remembers you when your farm burned down, and (5:00) you found it exciting to help rescue the cattle before the fire reached them. The last animal you saved was a penned calf trying to stomp out the flames as they entered under the slats of the pen. Joan also told of the time when you were a whiz kid. What happened?

CARL BEREITER

Oh, that’s the radio show, another thing teacher Floussy Dousse had. She had a lot of friends. And one of them worked for a radio station in Chicago. And she arranged to bring her eighth grade social studies class in to be on the “Whiz Kid.” Which was a kind of quiz show on social studies and so on. And, so, since I was doing eighth grade social studies, I got to go along. So I

was the little half pint alone with some bigger kids. And that was really a high point (6:00) in school, to go there. Chicago was a big city. I had never even been there before.

AUDREY AMREIN-BEARDSLEY

What was the question about Japan?

CARL BEREITER

Oh, after firing a lot of factual questions at us, the M.C., his name was Joe Kelly, said, and, uh, “What do you think about Japan and our relations with them?” Now this was 1940, and I warned the nation that they should watch out for Japan; that we had never been too friendly with them, and, you know, the little kid, they didn’t listen. If they had, we might not have had Pearl Harbor. Who knows?

AUDREY AMREIN-BEARDSLEY

That was our first lesson.

AUDREY AMREIN-BEARDSLEY

In your teen (7:00) years, you belonged to the Pseudo-Intellectuals. Who are they?

CARL BEREITER

Well, the name is very descriptive.

AUDREY AMREIN-BEARDSLEY

Of course.

CARL BEREITER

We were pseudo-intellectuals. It was completely outside the school system. It was just a group set up by some kids who were in college. And they set it up during the summer, but they let high school kids into it too. It was essentially a great books club. We read Plato. We, I forget what else; but, you know, they were real classics. And then we would discuss them. And again, it was a fantastic intellectual experience. And then one of the members was the son of the editor of the *Kenosha News*. And so he would (8:00) publish an article every week about the proceedings of this group. And I know, one time the discussion was about religion, and my mother was just horrified that I had said the things that I had said. And that other people knew about it now, so that the shame would spread.

AUDREY AMREIN-BEARDSLEY

Dare we ask?

CARL BEREITER

Oh, well I had a very religious cousin, Clark Koffner. If you look him up, he is still doing missionary work out of Florida. He has a language learning site. But he came from the very religious side of our family, which was quite fundamentalist. And he and I had a debate. I believe (9:00) it didn’t get much farther, then just my question whether you can believe everything that was in the Bible. He thought you could. But that was dangerous talk in my mother’s view to have spread around.

AUDREY AMREIN-BEARDSLEY

Sure. Your daughter, Jean. Your daughter remembers you telling her a story that after she was born, you felt like a Jersey cow.

CARL BEREITER

Hmm?

AUDREY AMREIN-BEARDSLEY

These are all the surprises of the show. Jersey cows, you explained were so inbred that they had no idea what to do with their calves. The mothers would stand over their calves mooing in bewilderment.

CARL BEREITER

She has just one thing wrong. It's the wrong breed of cow. It's the American Shore-Horn. Otherwise, that was true. It was something to watch. It (10:00) would drop a calf and then look around in wonderment. "What do I do now?" All it knew was that it should not abandon it. So it would just stand over it.

AUDREY AMREIN-BEARDSLEY

She said what strikes her most about you is your incredible ability to draw analogies from other fields and to explain complex subjects in simple ways that laypeople and professionals from other fields can understand.

CARL BEREITER

Well that's nice.

AUDREY AMREIN-BEARDSLEY

That is nice.

CARL BEREITER

I'm glad to know that.

AUDREY AMREIN-BEARDSLEY

After getting to know you, I would say the same thing. You do that. I think that really helps people make sense out of things they don't understand. Your son, Tom. When Jean and Tom were young, they told you a joke, "How do you know when there is an elephant in your bed." Your answer, "There's a little e on his pajamas." (11:00) You thought for a moment and then made up your own elephant joke, which you do, after we realize after the last week of spending time with you. "How do you when there is an incontinent pig in your bed?" Do you know the answer?

CARL BEREITER

Yeah, sure. So does everybody else, now, I think. That's an analogy

AUDREY AMREIN-BEARDSLEY

Sure.

CARL BEREITER

It has a little p on it's pajamas (laughs).

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AUDREY AMREIN-BEARDSLEY

Becoming Dr. Bereiter. To your sister, Joan, you have always been ahead, and the class genius. You seem to have the imagination and talent to become a cartoonist or a classical pianist, yet you concentrated on literature, reading it, and writing it, and comparing it. Why did you turn to education?

CARL BEREITER

Oh, well, you know, I stuck with literature through a master's degree. I really did want to be a writer, and I spent, during my last two years in university, I realized I was spending too much time on my school work. So I set up this routine, where I would do it in one week, and then the next week I would write, and then the next week I would do the school work. But getting into education, I was already drifting very much in the direction of psychology (1:00), of what now would be called cognitive psychology. The name didn't exist then. Because I was curious about, well, particularly, about writers, about how they tick. How does an original work come out of the writing, in a sense? And, so, that's what I wanted to pursue. I don't think we really got, or to pursuing that until Marlene and I were doing research in the 1970, late 1970s on writing, and, finally, tackling some of those things that had been in the back of my mind for the preceding twenty years.

AUDREY AMREIN-BEARDSLEY

What brought you to the University of Wisconsin?

CARL BEREITER

Pardon?

AUDREY AMREIN-BEARDSLEY

You went to the University of Wisconsin.

CARL BEREITER

Yes. Yeah, for both (2:00) my comparative literature work, and then back education.

AUDREY AMREIN-BEARDSLEY

And then what brought you to the University of Illinois Urbana-Champaign?

CARL BEREITER

Well in between times, I had, I was a research post-doc, I guess you could say, with the Mary Conover Mellon Foundation at Basser College, where a famous psychologist named Nevett Sanford had run a study on personality development in the college for years, and they had hired me as, one of them said, to keep them honest. That's about how much virtue they saw in the statistical analysis. And, but as I worked there for those two years, I came to realize, you know, that is about all it's good for. That if you're going to make a difference in education, you need to

get out there and do (3:00) experiments. You have to try things that may fail. And work to design things that are better. When it came, when the Vasser study was wrapping up, I was out for jobs, and Illinois offered one, and I thought from what I knew of the people there this is the place to go to learn how to do experiments. Because I didn't know. I had no experience whatsoever in doing experiments. And I got there, and was certainly encouraged to do this, although, well, like my first funded research was buying a baby chimpanzee and getting somebody to try to teach it finger spelling. Other people had taught sign language, but I thought maybe we could teach it to spell. And, I remember telling colleagues, they had really powerful measurements statistics division in the college of ed, telling him about the study, and he said, what are going to use for a control group? (Laughs) That so stunned me that I didn't answer, that when I told this anecdote many years later to a labor leader, he said, "You should have said a chicken." It would have been the perfect answer.

#### AUDREY AMREIN-BEARDSLEY

Jean Osborn. She worked as a teacher and program developer within a preschool, which was your second research project after the chimpanzee study, which eventually turned out to be the Bereiter Engelmann Preschool Project. The (5:00) woman who told her to work with you, had told her, a nut like you might get along with a nut like Carl Bereiter. What was this preschool about, and how did you use humor to teach kids?

#### CARL BEREITER

Well, I don't know who called Jean Osborn a nut because the main thing she brought to our preschool project was sanity. She was very level headed and knew how to deal with the practical world. Getting those kids bused to a school, even getting them rounded up and identified and so on. Those were the kinds of things she was really good at. Using humor. Well, there was virtually no irrelevant humor; but we did keep a light touch on, while the kids were working (6:00) very, very hard because the basic idea there was again a very simple and non-psychological, here are kids who are already at the age of four or five way behind middle class kids in development and things like numbers and learning the alphabet and things like that. It isn't enough for them to learn as rapidly as middle class kids do. If they're going to catch up, they have to learn faster. So, that was the whole idea of this thing. And, so, the kids did work hard; but it was in bursts of fifteen minutes, and then in between times, we would do fun activities, like games and so on. And Ziggy Engelmann as a teacher (7:00) was always, he couldn't not be funny, you know, with the kids. And at the same time, though, a very powerful teacher, in the sense that they really, when they sat down there, they knew they were going to work very hard, but he had these little kids using the multiplication table that was pinned up to do multiplication problems. And then there was this one who answered very fast when he posed the problem, and I heard him, he asked, "How did you do that?" "Well, I just, it was in here." Ziggy said to all the rest of them, "You know what happened, what he's telling you? He's got that multiplication table in his head. Now (8:00) do you think you could get it there?" These kids immediately set about trying to get this multiplication table in their heads. Now, maybe that doesn't sound so impressive, but, if you've been in many schools where in third grade they have to teach the multiplication table, and in the fourth grade they have to teach it again, and then in the fifth grade again they have to teach it, by which time, you know, Zeno's Paradox has taken over. They're never going to get there. Turning it in to a social kind of event, this isn't about humor, this is about powerful teaching; which was really what we were about.

AUDREY AMREIN-BEARDSLEY

I thought you were going to come up with a joke.

CARL BEREITER

No.

AUDREY AMREIN-BEARDSLEY

Siegfried “Zig” (9:00) Engelmann. Your person of afore. When I contacted him, he expressed that during your work together at this preschool, funny things happened everyday. One day after your daily music period, you played the piano, and Zig led the singing. A piano key stuck, and you tried to unstick it. A handful of preschoolers watched with a great interest, in terms of what you were doing. One was an energetic five-year-old named James. He pointed to the strings and asked you, “What’s that?” You showed James what happened when you pressed the single key. Then he said, with a bit of bravado, “If you press more than one key at a time, like this,” then you ripped off a couple snappy cords, “it makes music doesn’t it?” And then James replied, “Damn straight.” With Zig, or Ziggy, as I think you referred to him before, you collectively added a new term to the vocabulary of pedagogical argumentation (10:00)—direct instruction. How did that come about?

CARL BEREITER

Well, that was just a direct, descriptive term for what we were doing. By direct, see the term is now in fairly wide use, and to think, a) it’s behaviorist, no, it’s totally a-theoretical; and b) that it involves a kind of hammering things into kids’ heads, no, it was having a learning objective, which in this case was: identify something that kids need to learn that they don’t know, and teach it to them by the most direct path you find. One that wastes the least effort in getting there. But we needed a term to describe it. Actually the term we used was direct verbal instruction. Not that we had anything against manipulatives and so on (11:00), but that was a distinguishing feature because very little of preschool education at that time took the verbal route as, well, even being as one that little kids could travel. Of course, everybody believes in talking to kids, but the notion that you could tell them things and expect them to apply them and remember was a bit radical at that time. I think it isn’t anymore, but it was then.

AUDREY AMREIN-BEARDSLEY

Would you describe yourself as a behaviorist?

CARL BEREITER

No. No, well, when I was at Vassar, I got a hold of Skinner’s book, *Science and Human Behavior*, I think it’s called, and for a period of a good three weeks, I was an ardent behaviorist because, well, he made everything seem so clear and plausible and so on; but (12:00) by the time I was into actual preschool work and so on, it was very clear that behaviorism didn’t have the answers, by that time, Skinner was publishing schedules of human behavior, schedules of reinforcement, and this was really about conditioning pigeons and chickens and creatures like that. But it goes through all of these schedules, and it’s very scientific, and then at the end, in an appendix, was how to teach the bird to peck the crayon that you want, and it had a lot of simple things they found worked. They had absolutely nothing to do with behaviorism and theory and so

on. That was just (13:00) plain teacher lore for teachers of pigeons, and it came clearer that behaviorism was riding very high at that time. It was, to a large extent, phony because you had to get the pigeon to peck first before you could reinforce it, and the whole notion, the problem, of how get children, or pigeons, to up to the point where they're doing something that you want to reinforce way outside it, I remember Dick Atkinson giving a presentation on the elaborate scheme they had for designing an educational sequence; and it was a flow chart with lines (14:00) running all over it and so on; and I asked who, where is the part where you plan what is actually done to get the kids to learn the material. And he said, "Oh, over here in this little box," that was kind of off the track, "in that box, there is a teacher. And we have a teacher plan the lessons." So it just didn't do it; but in those days, in the popular educational wisdom, you were either a behaviorist or you were Piagetian. And you couldn't be anything else. So, you were either in the league of the Devil, or you were on God's side. That's what (15:00) it basically came down to. And, I didn't find, although I found Piaget extremely interesting; and, in fact, would have originally would have gone straight to Geneva right after my doctorate if I didn't already have a young family that needed some support, so. But it didn't really offer anything of direct application, and people trying to be using Piaget in early childhood education were really not doing much more than taking his test tasks and having the kids do them and then do them some more. So, I did, in fact, publish an article criticizing both behaviorism and Piaget (16:00). One of my colleagues wrote a rejoinder saying I'm still a connectionist—he was a little out of date as I was—because I didn't object to it strongly enough.

AUDREY AMREIN-BEARDSLEY

Tell us about Marlene Scardamalia, who happens to be in the audience with us today.

CARL BEREITER

Well, she's been inseparable from both my life and work for thirty some years now, and she first arrived as a researcher, hired on our research project, and she'll tell you a sad story, she worked (17:00) herself to the bone and got no credit for because her results were showing that our program wasn't going to work. I didn't actually blame her for showing that; instead I said, "Well, there's no use wasting anymore time on this program." Her results were conclusive to my mind. And then when I went on to visit classrooms and saw what they were doing, it was clear why it was failing; so we did something else. We collaborated in some cognitive research for a while because she had done cognitive development for her doctorate. And then we got into writing research and a whole kind of continuum of things. That's what led up to the present date.

AUDREY AMREIN-BEARDSLEY

You have 30+ some years together, many of which you have been married and doing research together. Of what are you most proud in terms (18:00) of your research together?

CARL BEREITER

Well, you know, I think that the development of knowledge building as a distinctive educational approach is the main thing. That's what we believe has a future. And we're recruiting over the years very good scholars and innovators around the world who can tune in to it. There's an association for knowledge building in Italy with an Italian name. There is a center for it in Helsinki at the university there. And a number of, it is very active in (19:00) Hong Kong, and

Singapore, and so on. And all of these people are contributing to what I think is eventually going to be what the 21<sup>st</sup> century recognizes it needs educational. So, that's the main thing.

The single key piece of work, I think, was what we did on writing research that turned a corner. And that was the, although very few people who were doing writing research had any questions in mind, we did have one. And that is, how are kids able to write as well as they do given how little thinking they apparently do while they're writing? And, we found an answer. It's the knowledge telling model. It's a marvelous system for doing writing assignments in school. It isn't good for anything else, but (20:00) it's very good for doing school writing assignments. And one of the things, characteristics of it is that it leaves your knowledge essentially untouched. You draw on your knowledge to write, but the writing doesn't affect your knowledge. Whereas with mature and expert writers, it does. And, then, they'll often tell you, and you've probably experienced this yourself that in the course of writing an article or an essay when you're developing an argument and so on, your beliefs change or refine or progress. You'll come out of it knowing more than you did before, and kids weren't getting this. And, so, that's where our attention really shifting away from teaching them how to write better to getting them engaged (21:00) in a process that involved writing, but where the ideas were at the center, and the selection of those ideas and the development of those ideas. And so that one piece of research certainly turned our thinking in a different direction. And it's probably one of the most frequently cited research findings that we've had. So, it wasn't just us privately thinking, "Hey, this is something worthwhile." Other people have latched on to it too.

AUDREY AMREIN-BEARDSLEY

Who is Mr. Sleebly?

CARL BEREITER

Oh, Mr. Sleebly. Well, he's a character in a series of thinking stories that I produced (22:00), but with help from others, particularly Marlene helped out in the writing. Some of them were mathematical thinking stories. I created a host of characters, all of whom had cognitive deficits, in one story or another. That is, there was one kid is very hasty and jumps to conclusions. Another thinks everything is magic. Sleebly's problems were that he was the ultimate concrete thinker. He couldn't handle abstractions at all. He also had a remarkable tendency to forget things and be out of contact with the physical world; so, my collective collaborators in the math program insisted that those (23:00) Sleebly stories are actually autobiographical.

AUDREY AMREIN-BEARDSLEY

So I've heard. In fact, we have two excerpts. Which to exactly what you've just described. The first excerpt: "If I have five apples, and eat two of them, how many apples do I have left? 'That's easy,' said Mr. Sleebly. 'Five apples. What do you think the answer was supposed to be?' 'Perhaps you didn't hear the question. I have five apples and eat two of them.' 'Exactly,' said Mr. Sleebly, 'you have five apples. You have three on the outside and two on the inside.'"

Excerpt number two: "'How many eggs in a dozen? You are going to ask what kinds of eggs, right?' 'You read my mind exactly,' said Mr. Sleebly. 'A dozen is a dozen, no matter what it is a dozen of. Do you know how much that is?' 'Give me a hint,' said Mr. Sleebly. 'Alright, it's the same (24:00) as the number of fingers on your hands plus two.' 'Two what?' 'Two fingers.' 'You mean to say that a dozen eggs is twelve fingers?' said Mr. Sleebly, 'I find that very hard to believe.'"

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“Significant Accomplishments”

AUDREY AMREIN-BEARDSLEY

What is the thread that runs through your research?

CARL BEREITER

I think the thread that runs through it is the continual search for things that young students can do that people didn't think they could do. And then looking for ways to universalize that, to make whatever enabled this kid to do the remarkable thing, something that all of them can do. So, it's partly the effort to democratize knowledge and talents; but also the effort to extend our (1:00) conception of human capabilities beyond what it customarily is.

AUDREY AMREIN-BEARDSLEY

You state that it has always struck you that the best practices in education are not very good. Why, and how might we do things better?

CARL BEREITER

Well, when I say, “the best practices aren't very good,” first of all, I need to qualify that. That is a little extreme, even for me. I think best practices in classroom management and in general, how to relate to kids in the classroom, I continue to be impressed by how good teachers are at this. And any teacher who has survived very long has probably mastered that art to such an extent (2:00) that I think it's really presumptuous for researchers to think they have something to tell teachers on this count. The information flow should be the other way in that case. But, where a “best practice” really does fail, is on how to get difficult concepts and skills across; and it's the state of the art that's the problem. You go to the doctor and should not be surprised to hear whatever your ailment is, let's hope it's not a very serious one, has no known cure. And that doesn't mean that will be forever incurable. It often, but they hope to find one. And the other is that you'll probably get over it anyway (3:00). But, in education, I never hear admitted that we don't know how to do something. And yet, the question, how do you introduce kids to rational numbers? The teaching of rational numbers is just a colossal failure. Very few people who don't, unless they go on into more advanced mathematics, very few people emerge from school with useful knowledge of mastery of rational numbers. They may pass the tests; but that's because the tests have been revised and revised, until they're things that people can pass. But they don't know how to do it. Well, how do you start. The conventional way is you start with, it used to be pieces of pie, and now (4:00) it's pizza, and pretty soon it'll be pieces of something that's more organic. But it's still the basic idea. You cut something up into so many pieces, and the fraction, if you've cut it into eighths, then it is one of those eight pieces. Now there's a lot of research that shows that that's a really bad way to introduce rational numbers because what it encourages kids to do is transfer everything they learned in the preceding four and five years about counting numbers and to transfer it over in to fractions. And they're in big trouble as soon as they do that. But, that's how it's taught. That's how the textbooks present it. Whose fault is it? Well, it's certainly not the classroom teacher's fault. It's the fault of this thing called “best practice.” And in (5:00) this case, best practice happens to be just poor. If you track along, this is an interesting one because I think it's a solved problem; it's just that people don't know about the solution. But

then there are others that, like the teaching of foreign languages is a great mystery. That's why foreign language instruction in North America and generally in the English-speaking world fails so badly when it succeeds so well in other countries. There's something missing in the state of the art. It should be acknowledged; but I still remember how outraged a curriculum supervisor who supervised a French second (6:00) language instruction. And I said, "doesn't it get discouraging at times to be teaching a subject that everybody fails at?" Well, of course, they derange things so that this horrible fact is never actually presented in the experience of the teacher, and she didn't all appreciate my having pointed it out. Though she didn't deny it.

#### AUDREY AMREIN-BEARDSLEY

In the 1980s, you were selected as a member of the National Academy of Education. And in 2001 you were featured along with Vickinsein, Heideger, Piaget, Vygotsky, Fouccout, Gardner, and others in the book, *Fifty Modern Thinkers on Education*. That's quite the honor. What do you feel your biggest impact has been?

#### CARL BEREITER

Impact. (7:00) Well, you know, the evidence is all correlational, so you really can't attribute causation with confidence. I could point to how kindergartens have changed. And they've changed in ways that are in many ways congruent in with what we were doing in the preschool program back then. But, not only is it not clear that our work had any causal influence, I'm not sure that I want it to be accused of it because I'm not that happy with what's happened in kindergarten. Essentially it looks like all they're doing is moving first grade down to kindergarten. And that's no great intellectual achievement. But (8:00) I think, you know, the terms or concepts that I introduced, not alone, but in one case with Engelmann, and other ones with Marlene, direct instruction, knowledge building, intentional learning, that hasn't spread to the same extent, but here and there and everywhere you'll find some educators who say, "Ah, yes, I do think intentional learning is a better concept than self-regulated learning." The fact that 99% of the population in education thinks they're the same. That doesn't mean there isn't a difference—some people do. That's the kind of impact that is a little more identifiable. And (9:00) changing the way people talk about things is to a large extent changing the way people think about things, and that's an impact, as a researcher, I would be happy if I could think I had a part to play in some of that.

#### AUDREY AMREIN-BEARDSLEY

On that note, what are you big thinking or exciting next steps in the field?

#### CARL BEREITER

Well, the stuff we're working on right now is a, one is a model of knowledge creating dialogue moves. Think of "moves" the way you would think of moves in a chess game. They're not the whole dialogue. Making moves isn't the whole chess game either. It's how you interact with your opponents (10:00), and how you take care of yourself so you stay alert and don't make mistakes. All those things are part of the game. In dialogue, a whole lot goes on that is not advancing towards a goal, but there are moves people can make that are advancing. We're working on a normative model. Not one that explains knowledge creation, but one that lays out good moves. And I think this is certainly going to help us in further design of technology. And whether it will have much impact outside of that work, I don't know. One of the more

pessimistic things I say from time to time is that nothing is freer from danger of being stolen than is an educational (11:00) idea. You can leave it sitting out there, and you come back three years later, and it's still going to be there. So, it's safe. But this is one. I think, more generally, society as a whole are more moving more steadily in the direction of putting more and more of a premium on the ability to work creatively with knowledge and ideas. And this is not just having an ability to absorb knowledge and generate ideas. It's to work with those things as objects and turn them into something. Because another of my favorite sayings is that, "ideas are a dime a dozen." That (12:00) a single isolated idea is very rarely worth anything. It only starts to acquire a value if you build, if you use it to start building the more complex structure. I think that's because society as a whole has to move this way given the dynamics of it. It will eventually become how education is shaped to a very large extent. This is far from an original idea. Education reflects what is going on in the culture. It doesn't produce cultural change very often. And as the society as a whole gets to feel comfortable (13:00) with working with ideas. I mean, most people are not comfortable with it right now. But, as people get more comfortable with it, eventually, that will get to be what we do in school. And that's, I would hope that by the time the schools get turned in that direction we'll have some good technology to offer, we'll have some good pedagogy to offer that ties directly in to that kind of objective.

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"Philosophical Questions"

AUDREY AMREIN-BEARDSLEY

Who helped you become the person you are today?

CARL BEREITER

Well, you know, I really have to give first credit to my parents. Neither of them had much formal education. My mother had to leave school at the age of 12 to keep house for her family when her mother died. And my father's father forced him to drop out of high school because he was supposed to go home and help work on the farm so that his father could sit on the front porch on a rocking chair. Well, that was the expectation in those days. That's what farmers had sons for. So, he had to do that. But they certainly valued education, and it showed up in different (1:00) ways. My father wasn't very expressive on these matters, but he showed it by doing the morning chores so I could stay in and write and study or practice the piano. My mother was continually asking me about what I learned in school. And this was not the usual middle class family monitoring whether the school was doing its job. She really wanted to learn those things herself. And if, indeed, I have some skill in making ideas accessible to people, I think I learned that there because she wanted to know what I had learned, and it had to be done verbally and in fairly simple terms. So, (2:00) you know, I think they were very important influence. My brother and sister and I were the first two people, first three people for a long to ever go to university; and my brother was the pioneer there, and by the time I and my sister came along, it was taken for granted. There was never the slightest doubt that we would do that.

AUDREY AMREIN-BEARDSLEY

What inspires you?

CARL BEREITER

Well, I don't inspire easily. I think it's marvelous things that little kids do.

AUDREY AMREIN-BEARDSLEY

(3:00) I like that answer. What do you find uninspiring?

CARL BEREITER

Oh, Ontology. When I come upon the word "ontology" in an article, that's a signal for me to quit reading. I do. There are a few other words in that category too, it's just that ontology happens to be one of the hottest of them at present.

AUDREY AMREIN-BEARDSLEY

That leads right into the next question. What is your favorite word?

CARL BEREITER

My favorite word. Help me out, Marlene. What's my favorite word?

Marlene:

Knowledge.

CARL BEREITER

Well, I'm really big on knowledge. And it's not because I have so much of it. People get fascinated with the things they don't have (4:00). You know? Yeah, knowledge is getting a really bad rap now. But here we are in the knowledge age, and the advanced thinkers are all abandoning knowledge, and it's really pretty pathetic. But I'll get into that in my "words of wisdom." So, I'm going to drop that.

AUDREY AMREIN-BEARDSLEY

Sounds good. What profession other than your own would have liked to attempt?

CARL BEREITER

Well, you know, if we would have had a better guidance counselor at the high school where I went, I would have learned that psychology, there's more to it, or it's not just doing psychotherapy, there are all kinds of things psychologists do. And I believe I would have gone (5:00) into that field. I don't think I would have ended up that much different. But it would have been a different disciplinary route. Yeah, that's probably. You see, I wanted to write. I wanted to write fiction; so, I thought of going into journalism; but then, my first year English teacher in college said, "Well, but in journalism, you have to do journalism." You have to go around and get news—oh, I don't want to do that. I paged through the catalogue and came up with humanities, and I read the description of that. Oh, well, that sounds pretty good. I think I'll go into that; so I show up to register in Madison (6:00) at the University of Wisconsin, and, you know, there's just another student behind me at the desk, "What is it, what are you majoring in?" I said, "humanities." She said, "There isn't any such thing." So, I, "Well, what would you suggest that's close?" And that's how I ended up in comparative literature.

AUDREY AMREIN-BEARDSLEY

What is your favorite movie?

CARL BEREITER

The one that keeps coming back to my mind is *La Strada*. It's just the complexity and the authenticity of the human experience that's portrayed there. I haven't seen it probably in the past 40 years, but I still remember it (7:00).

AUDREY AMREIN-BEARDSLEY

If you could tell President Obama one thing, what would it be?

CARL BEREITER

Just one, huh? Well, if it had to be one thing, the trouble is, the main thing I would tell him is just virtually what all the people who are on his side are telling him give up on this illusion of multi, or bipartisanship. You know, in Canada, the party that is out of power but of substantial, is called the Loyal Opposition, and the implication of that is they will not unnecessarily impede the conduct of government. Well, by the criterion (8:00), the Republican party is not loyal opposition. It's disloyal, and I think the rest of us outside of the United States are horrified at this. I mean, a respectable party should not act the way that party has acted. It's, you know, it's disloyal. That's it. As I say, everybody is saying that. If, I think he needs some people to talk to him about education.

AUDREY AMREIN-BEARDSLEY

Why's that?

CARL BEREITER

Well, it's not that what he's proposing is necessarily bad; although some of it's questionable. It's just that it's so mediocre. I don't think he realizes (9:00) that "best practices" isn't very good either, and that you may be able to make a tiny gain by telling the teachers, "Look here are the standards, and you need to teach harder." But it's essential to teach smarter. And teaching smarter is not, essentially, a matter of producing smarter people who are teachers. It's developing, my favorite word, developing knowledge. It's the developing the knowledge or, as Homer Dickson calls it, ingenuity, which is not a personal trait, as he uses the term, it's really the supply of knowledge you can draw on in solving problems. And that's, education is deficient in this. There is no use yelling (10:00) about we've got to teach and improve their mathematic skills. We need more knowledge about how to get mathematical ideas to develop. And the sorry thing is there is quite a bit, there's an awful lot more knowledge available right now about that then is being applied. So, yeah, if we were sitting down over a beer, I'd probably say something like that.

AUDREY AMREIN-BEARDSLEY

If you could have dinner with anybody dead or alive, who would it be, and why?

CARL BEREITER

Well, having dinner with a dead person is, I don't find that appetizing (11:00). With live people, I really do enjoy dinner with a huge variety of people. But, when the chips are down, I'd have to say I'd really most want to have dinner with Marlene. Now that sounds peculiar because we, in

fact, we eat dinner together everyday; but, it's sitting, generally, it's food I fixed, we'd eat it and enjoy it, and have the television on, and Marlene's got her computer screen open and is working away and so on. So, we don't go out to eat very often; but, when we do, I really enjoy it.

AUDREY AMREIN-BEARDSLEY

So romantic. I love that answer. He's quite the chef—as a side note. And quite the food critic—the food connoisseur (12:00). As Angel called him, the foodie. Last question in this section. If heaven exists, what would like to hear God say when you arrive at the pearly gates?

CARL BEREITER

Oh, I think, it reminds me of that scene from *Monty Python: The Holy Grail*, where after I get all my arms chopped and so on, I say, “let's call it a draw.” God would say, “I know you didn't believe in me, but I wasn't that sure about you either. So, let's start a new page.”

AUDREY AMREIN-BEARDSLEY

“Let's call it a draw.” That's great.

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“Words of Wisdom”

CARL BEREITER

I put together a few words of wisdom. And the first ones are ones I originally composed as being appropriate for school children. But then, and I intended it as kind of light entertainment for an audience I was speaking for. But then when I started to show them, they all whipped out their pencils and paper and started writing them down. Now that may have been just because they were conditioned to believe that anything that's number is going to be on a test. But, anyway, that, these are the simple rules:

1. **Learn a lot.** I think that's really important—particularly if you are in the (1:00) spell of gurus of information technology, who are now saying, “you really don't need to learn anything, store up any knowledge because you really, knowledge on demand is the thing, and you need search skills.” How anyone can still think that after 30 seconds still puzzles me because how do you search for anything if you don't, I mean, the difference between a good searcher and an inferior searcher in any search is likely to depend on almost entirely what they know. And, there are a couple decades of research showing that for reading comprehension, the main determinant for what you'll understand what you read is what knowledge you brought to it.
2. So, “learn a lot,” (2:00) needs emphasis; but **understand what you learn.** The market value of knowledge that lacks understanding is going down. But, the things you understand don't go out of date very rapidly.
3. **Learn to like ill-structured problems.** It takes a while to explain this one if you're not already familiar with the term; but I don't expect many of you are. The word problems you get in, the word problems in math books, the word problems in physics books, the puzzles you are amused with on puzzle pages of the newspaper—those are all well-structured problems. There is a clear goal, the information you need to solve the problem is there before you. There are rules about how to carry it out. The problems (3:00) in real life aren't anything like that generally. That's why I'm very skeptical about all this

passion about getting kids to get good at doing arithmetic word problems. The day they leave school is the last day they'll see a word problem. After that, they have to learn how to solve ill-structured problems. Some people don't like them because the goal of the problem emerges instead of being very clear at the outset. And what knowledge you have that might help is not certain, and it is not even certain that you have enough knowledge to solve it. But those learning to like problems like that is, I think, is going to hold you in good stead. (4:00)

4. **Take risks with ideas.** Daniel Dennett characterizes on a number of different levels organisms and how they adapt of get along in the environment. Insects, for instance, as a species, can learn, but they learn by the ones who have it wrong dying off, and the ones who have it right surviving. So, those are Darwinian creatures. Popperian creatures, he says, are ones who, as Poppers said, the great thing about thinking is that our ideas die in our stead. In other words, if you have a bad idea, it can die and you can go on living (5:00) and can change your idea. So take risks with ideas. People very seldom die as a result, a direct result of having a wrong idea. Applying it, but thinking it is not going to be injurious to your health.
5. **Improve your ideas.** This is the big thing. This is the main challenge we face all the time in work and schools. Kids love to generate ideas, and they're very good at it. But improving those ideas is hard work, and it doesn't come naturally at all.
6. **Make friends with people who think.** Dave Berliner said something quite similar to this in his "words of wisdom." I may just be echoing them. But (6:00) thinking is hard, and it helps to have a thinking support group of people who are trying to do it also.

Now those are just for everybody. Now for aspiring educational researchers I have a few others.

1. **Obey the preceding six rules.**
2. But the next is, **learn to do design research.** In the learning sciences, this is becoming the method of choice. It's really quite a different modality of thought from research that's testing the validity of ideas. Both are very important. One we call belief mode, and it's (7:00) been the mode of formal education from Plato's day onward, and it can be extremely good and important although it can also degenerate into indoctrination and so on. But design research, simply research in which you create a design or invent something carry out research that brings you in information that you can use in further cycle of design, so it's an iterative process. There's quite a literature accumulating on it now; though I don't think it's something you can readily learn from a book. You probably need to learn it from a mentor
3. **Don't undertake design research on your own (8:00) until you have your degree and preferably tenure; instead be part of an expert-led team.** Now, all these rules, particularly any rules about creative behavior, are meant to be broken; and you can point to people who broke those rules. AnneMarie Palinscar developed reciprocal teaching for her doctoral dissertation. Joan Moss developed a revolutionary approach to teaching rational number. There are only partial exceptions. In both cases, they had exceptional mentors who worked closely with them on it.
4. **Avoid questionnaire and interview research unless you have a powerful idea that can be tested by it.** I don't know (9:00), maybe this is irrelevant to your experience, but over the years I've seen so many crushingly dull doctoral dissertations done where somebody just went around and held a microphone up in front of people and got them to talk about how their parents didn't understand them or their principal was horrible or

something like that. And then you process it through a machinery of grounded theory and end up with a category scheme that finally you can tabulate and produce some tables that will make it look respectable as research. Don't do that. On the other hand, surveys and questionnaires can have extreme value (10:00) if you've got an idea that can be tested that way.

5. **Do research that lets kids show how smart they are.** You know, throughout the 1960s and 70s a lot of American research was devoted to showing that the things that Piaget said that kids couldn't do, they, in fact, could do given a little support, something like that. I think now in the 21<sup>st</sup> century, we're showing that kids can do things that nobody thought they could do. And how you design the research and carry it out (11:00) is really important and whether it's going to show kids to be smart or to be stupid. And I'm just urging you to try to do the kind of research that shows how smart they are. I wondered why, as many people wondered, why are Americans getting such different results from what Piaget's group in Geneva was getting with kids doing conservation of number, conservation of substance, and so on; and I think I found the answer when I saw a movie of a demonstration of how to carry, how to test kids at Piaget tasks. The tester's very aloof, almost robot-like responded to the kids not at all, delivered the questions sharply (12:00) and precisely, and the kids were giving dumb answers. They had a reason, apparently, for why they were doing it that way. It wasn't just that they were mean. But, they, it was a bad reason. So, in many cases all you had to do was sit down with a kid and act like you were really interested in what the kid thought. Then you would discover they really do think about these things.

Now on to rules that, there are just three, and I'll be done and start to hear from you, for educational technologists. I haven't really said much about technology (13:00).

1. Resist separating skills from knowledge. This is the big thing that's going wrong, and the way to guard against it is to make sure that any student activity whose sole purpose is exercising some "higher order skill" or some IT skill, ought to be replaced by something that serves the same purpose, but it does it by engaging students in constructing deep disciplinary knowledge. This obviously is an argument against drill training and higher order skills; but it's also an argument against the much more approved tactic of (14:00) integrating them into the curriculum, to the regular teaching. Because the net effect of that is frequently just to destroy the content coherence. There are just ways to get around that. The important thing is to don't make this mental separation of skills from knowledge. Nobody made that separation before 1955 if anyway. It's just an aberration, and hopefully it will not last for many more decades.
2. Be wary of generalizing from self-selected Web based communities to classrooms. I'm seeing a lot of that these days. There are, you get these web-based communities where you've got a group (15:00) of people who are patiently interested in what they're doing and they interact and so on. And some of them, like the one that Tapscott organized, involves school-aged kids and they're thinking about important issues and so on, but have you got there? You've got a potential membership in the community of millions, and it sorts itself out into 10 or maybe up to 100 people. This is just nothing like a school classroom where you've got 20-30 kids who didn't elect to go there. That's where they are. And the teacher is responsible for every one of them. They can't just, they can't just drift away in a web-based (16:00) voluntary thing. So, generalizing from one to the other is very risky, and there's a lot of it going on.

3. I don't know if I need to say this, but if you run an IT office, don't let pragmatism cripple vision. Geoffrey Moore wrote one of most interesting business-type books I ever read, *Crossing the Chasm*, said very often in many organizations, the IT office is the most, is the main barrier to innovation. And it's because of pragmatic considerations. Pragmatic considerations that say always deal with the market leader because if you deal with the little guys, they may not be there two years from now when things break. Well, that's (17:00) pragmatic and very useful, but just think what it does to the capacity of an organization to innovate. So those are my final little technologically-oriented words of, if you prefer to go along with the game, call them wisdom.

I think we're now at the point where we can have open discussion or questions.

Audience Question:

Hello. When you did your Pre-K research did you do any experiments (18:00) testing the length of day on the children and its impact? Basically half-day versus full-day.

CARL BEREITER

No, we certainly didn't. We had them for half a day, and that seemed like plenty. For longer periods of time, you'd have to get in to taking naps and all of those, that sort of thing. But, no, we didn't have, I don't have any research to say anything about length of school day I'm afraid.

Audience Question:

Thank you for coming. The question I had, when you were talking a lot about "best practices," and as teachers, we get bombarded every single day. We've got response-to-intervention, differentiated instruction, constructive learning versus explicit direct instruction. What are some of your (19:00) ideas that we can use as teachers that help us kind of navigate all these "best practices" ideas in order to be better teachers and be able to use the research that's coming out?

CARL BEREITER

Well, you know, I'm sorry to say that I don't think there's a simple answer that would be very helpful at all in this case. Yes, there are warring ideas about what would constitute "best practices." And those have generally been going on throughout the past century; so they're not about to be resolved right away. The, what I'm more concerned about is not these sort of ideological battles (20:00), as with the pick up on what amounts to pseudo science. And for that, I think there are, you have to go to sources to get some resistance to it. Like one of the biggies is learning styles. Not just any ole learning styles because there have been decades of research on learning styles, but it's eye-learners, versus ear-learners, versus finger-learners, or whatever. And that you should condition. There's nothing to that. But how are you going to know that? For one thing, the AFT's journal, I forget what it's called, *American Education*, or something like that (21:00)—Daniel Willingham has a continuing series of articles, in which he actually looks up the research that bears on these popular things. Brain-based learning is another. You're not getting that from brain researchers. You're getting that from people who have gotten on some brain-based bandwagon. Brain researchers are all saying we're going to have something to offer; but not right now. Those are the things that need to be resisted. They're not really ideological. I have, in fact, my conjecture is that what has happened in education that is different from any other field I know, is that there is a theory and practice gap in every field (22:00), but in education, that gap has been filled in by theories generated by practitioners. It's kind of

educational folk theory; and it has certain characteristics. There are disagreements among folk theorists. But it has entered to fill in the gap, but now it's a barrier between in getting from theory to practice. So, I sympathize. The problem you raise is a real one, and the, you know, the teachers are sadly former teachers that I know very well, you know, have suffered through that (23:00). And as far as I can see, it's the AFT over a number of years has been the one organization that has seriously taken on the task of doing something about the misinformation, the folk theories, and of making sure that good information that teachers can work with creatively gets into their hands. It's a huge order.

Audience Question:

My question has to do with what we have to deal here with *No Child Left Behind*. It's interesting how it's impacting education. I hear different philosophies, and I'd like to know what you think about that. Has there been a dumbing down in education where we are seeking low, or has been more positive? What is your take on that? (24:00)

CARL BEREITER

Well, I'm on the whole very skeptical about it. It's not that I have anything original or particularly authoritative to sort of say about it. But it certainly does look like it's encouraging a lot of teaching to the test. And, perhaps most seriously, it has put all the emphasis on formative skills, and so content areas like literature, and geography, history, and physical sciences of all, and biological sciences, they've all suffered, and that's, that's very, very sad. Now it sounds like Obama, with his new plan, he's not about to through out the (25:00) test-driven curriculum, but that he is conscious of the fact that it's had this effect of driving out other kinds of learning. And that should be a positive move. It's hard to imagine that there'll be a hysterical opposition to that, but I think that we can predict that there will be.

AUDREY AMREIN-BEARDSLEY

I would like to thank everyone, especially Dr. Bereiter.