Commentary
Cultivating the Possible

Jerome Bruner

ABSTRACT

In this interview, eminent psychologist Jerome Bruner takes us back to the 1960s to trace the beginning of his interest in educational theory. He describes the circumstances that led to writing his seminal book, "The Process of Education," and his surprise at how well the book was received worldwide, both from the public and academics. Dr. Bruner believes that "the easiest and most natural way we organize things is in a story-telling mode." This interview is a good example of his belief as he relates stories of the launching of Sputnik, the famous meeting at Woods Hall, his childhood friends, and his academic career. Finally, he invites us to "go beyond" as he explains his view of the future of education.

The Landmark Woods Hall Meeting and "The Process of Education"

I've always been interested in classic subjects in psychology, as you know, but what got me interested specifically in learning in its relationship to education—you won't believe this—came when the Russians sent Sputnik into the air. And at that particular point the National Academy of Sciences became terribly concerned: "How was it that the Russians got ahead of us in terms of space exploration and space travel?" They decided, particularly the people in the field of physics and biology, that they would bring together curriculum, committees to explore the issue of why the Russian educational system had produced a faster progress than ours and in the process they came to the conclusion that our schools were doing very badly. They decided to set up a meeting to bring together the leading figures in the nature fields

of science along with psychologists for a meeting at Woods Hall on Cape Cod. They asked me if I would be the chairman of the meeting. I had been interested in cognition and we were in the process of setting off this so-called "cognitive revolution"…so I took on the task. We had two weeks of very, very intense discussion at Woods Hall, in which it was decided that we should look at what in God's name education was supposed to be and why the schools weren't doing the proper job. The question that interested me, given my own predispositions, was not how kids just learned stuff but how they structured it, how they brought it together so that you could go beyond to make your leap into the unknown, into the realm of possibility. We had an intense two weeks of debate and then at the end of it the National Academy said to me, "Would you please write a report on this"—at which particular point I got everything else out, sat down in my study, and for three weeks wrote intensively a book called "The Process of Education." It was very interesting because also at that particular point, various members of the committee from the Woods Hall group had been involved and I sent drafts around to all of them… The person who comes to mind as one of the major ones, was the leading physicist in our group, who was a man named Jerrold Zacharias who was a professor of physics at MIT. We got very much interested talking about what the nature and structure of how you put something together in a way that made it possible to go beyond the information you had, that the object of learning was to open up realms of possibility beyond just the sheer business of what you learned. In order to extrapolate from what you knew required somehow that you put it into a structure that had this extrapolated quality to it that you could go beyond. That required looking not only at what it was that you were learning but how you were learning, and a discussion of what you understood, what your hypotheses were, that is to say the process of learning became just as important as the results of education as measured by the difficult kind of examination and that kind of thing. After a bit the book came out and to my absolute surprise (I wrote the book along with the chief editor at the Harvard University Press who was a lovely guy) it got the front page review in the book review section of the New York Times with very high praise. I had never really written for a general public and this was for a general public. I was kind of astonished and in the long run it's always amazed me, that book "The Process of Education" has been translated into fourteen different languages, has won all sorts of prizes, and even got me invited to Russia, which was a very amusing kind of thing. It was the Russian work on Sputnik that had got this whole business started over here. Then all of a sudden I started thinking about the educational establishment in schools and what schools were doing…and that started the famous curriculum reform movement. Instead of just third-down teachers putting together the curriculum, why don't you get the leading experts in the world to put together the curriculum for the schools—the physicists, the mathematicians, the psychologists…

Informal Learning: Generating and Testing Possibility

For some reason you use the term "informal." I don't know what the difference is between "formal" and "informal" in education except that formal usually means the strictly controlled teacher without exploring what the alternative ways of understanding things are. After all, the mind is designed to explore possibility, and being aware of that possibility and being able to share among kids and teachers alike the way in which you're going about it opens up to others the process of learning, the process of being educated as well as the results that you would test on some standardized test and so on. The standardized tests being mostly geared to how much content the kid had… I think what you call informal learning I think I would call, with emphasis on the possible, thinking about possible ways in which one can go beyond what you've learned…learning something and saying "Where does this take me? Where can I travel beyond this?" How did I come to this? There's some interesting kind of way in which it became clear to me that there was something that existed within the culture that encouraged people to go beyond it. That is to say, I remember well my theoretical physics friends and my bright psychology friends. The object was not just to master content but to think in a way about generating possibility and testing possibility. I think that's what you mean when you use the word "informal." I would say by "informal" keeping open the possible meaning of how you come to think of it, what the structure is, what it relates to, what it could mean metaphorically, how you would go beyond the metaphor, how you deal with prediction and that kind of thing. I thought at first that this was the kind of thing that we gifted intellectuals going forth, would this be the kind of thing that educators would love and I was absolutely astonished and loved it. Even the Russians loved it!

The first translation of the "Process of Education" you'll be interested to know was a translation into Russian [laughter]. The Russians translated it and I gather from my good friend Alexander Romanovich Luria that it was a very good translation too. The book had a very wide sale in Russia, not just among the people who were planning Sputnik, but also among Russian educators. I was absolutely entranced and the extent to which the underlying notion of learning, using your mind to think of possibilities of different ways of structuring what you know made a difference to them. They even gave me some kind of a reward…made me an honorary member of the Russian Academy of Science.

Narrative and Paradigmatic Modes of Knowing and Communicating

The easiest and natural way we organize things is in a story-telling mode. How is it that the Earth goes around the sun and we tell a story about something

called gravitational forces? Then we converted into something paradigmatic, something that can be translated into a more formal scientific mode, but there is some interesting kind of relationship between the narrative mode of telling the story part and the paradigmatic modes. There's much more emphasis as a result of all of this discussion, which was taking place in all of the sciences, much more discussion and more attention paid to how kids come to their notions about things and the cultural patterns that exist within society that dispose kids that way. It's interesting to me that kids from educated families very early—not all of them, to be sure—develop this more searching mode of looking at how things can be put together, how they can be structured. It was interesting because when you actually reach the general public with this they were interested too. There's something terribly boring about rote learning, where you just learn stuff measured by your ability to tell it back, reproductive learning—learning should also be productive as well as reproductive.

The American Educational Research Association had a meeting here in New York, and we met in Madison Square Garden. They invited me to give a talk and I was scared to death. I had never had a very successful relationship with my teachers when I was a kid; I never could quite tell what the devil they wanted of me. I gave my talk about the importance of opening mind to possibilities, the importance of structure as a means of providing one as a motive…how to see leaping into the possible, what's made possible by your notions, what does it imply. And also the importance of dialogue in this, people exchanging their notions about things, about how they go about understanding them, and so on. It was an eye-opener to me. I was delighted. I had lived a rather quiet life up to then, and all of a sudden I was a big shot [laughter]. And I didn't altogether like being a big shot because when you're a big shot, and particularly educators want you to tell them how to do it. The proper answer is part of the process of education is your trying to figure out with your students how to do it, how to understand better, and so forth. That's a kind of rough account of how it took place. It was a very interesting kind of thing because all of this was taking place while I was at Harvard, and I had really not had much to do, hardly anything to do with the graduate school of education there…I knew it had a high reputation. My only contact was that the guy who was the dean had just been appointed a new dean, was a sports partner of mine, Frank Keppel [laughter]. We used to play squash together every couple of weeks.

"Example" Is "Storytelling"

I think there's no question that narrative comes to us naturally in some kind of an innate tendency. We never have to explain to kids what a story is…you start

one…and they understand it. There's some interesting kind of way in which narrative performance and instance, a more general type of thing, this is all about…trying to understand something in a more general way. You tell a story of how it goes and then you try to state the more general type of thing, but separating the two is a dreadful mistake. It's characteristic, for example, when you watch good physicists or good mathematicians, whenever they come forth with a generalization, the first thing after the generalization is they say, "let me give you an example of what I mean." "Example" is "story-telling" in an interesting kind of way, and whether it's built into our genes or whether it's in the nature of language—I don't the know the answer although I've written a great deal on the subject. It was also interesting to me the way in which people of the humanities became very much interested in this way of teaching as well. Rather than talking about a revolutionary theory, they talk about the specifics of revolutions. The way in which, for example (to take a far-out example), Sigmund Freud comes along and tells us completely different stories about our desires and stuff like that—and we say, "Wow, that's an interesting kind of tale that you're telling from the patient. How does that fit as generalization about mankind and his striving?" So we're constantly trying to go back and forth. Exemplification and generalization are essentially "lovers" if I can put it that way—the exemplification loves the generalization and the generalization loves to take the exemplification as its lover [laughter].

Funny Things That Come to Mind

The fact of the matter is that "inquiry" as we know it has to do with knowing their own lives a little bit better. We also know that it is the exchange, the dialogue that makes such a difference. When I was a kid, for example, my two best friends on our block (we lived on Long Island) were Bobby Hecker and Jerry Riesfeld. Bobby Hecker's sister, Gracie, who later was an editorial writer on the New York Times...we were kids, 10 and 11, something like that. She was a terrific storyteller and she would sometimes hang around when Jerry and Bobby and I were having one of our "bull" sessions. And she would come forth with: "You guys are so funny. You're always X, Y, Z"—looking for some kind of generality. I didn't realize until maybe a quarter of a century later that Gracie Hecker was my first love [laughter], in so far as you could have love at the age of 10 or 11. It's so funny these things that come to mind. I remember one funny episode. Right on the corner of the street where our house was there was a mailbox and you know those engraved letters on the States' mailboxes that say "US MAIL." I was once going by, we were joking and saying how do we really know that stands for "US MAIL"—"maybe," said I, "it stands for Uncle Sam Married An Irish Lady" [laughter]… Gracie Hecker, who turned out to be a very "hot" editorial writer at the Times, said, "Why not? It's not only interesting because it's on the mailbox but it's

interesting Jerry that you thought about that. Why did you think of that?" Which sent me off for days thinking about why in God's name did that come to mind. But it was again always…keeping them open…putting structure, yes, but structure in a way that allows you to go beyond what you've structured to go, to go beyond the information, given what the information imposed. And I think you can do that with young kids. I'm seeing young kids differently now that I have grandchildren of this age. My favorite little niece is going off next week—she's just won a scholarship to spend the term at the University of Prague in Czechoslovakia. I said to her, "What are you going to do in Czechoslovakia?" and she said to me, "You know, Jerry, the one thing I think is wonderful is I'm not going to know what I'm going to do in Czechoslovakia—I love that!" [laughter] And I thought, she is doing OK.

A Call for More Dialogue

One of the places we should be going is to cut down this "teacher to the whole classroom." There should be more discussion between the kids. A lot of schools are now introducing that, justifying why you think what you do, saying what you did, what the alternatives are…make it a more general discussion. And stop fixing it at such sharp curriculum objectives—leave it a little bit more open…they have to learn certain kinds of things but what are the other possibilities? I want to reopen the possible…so how do you do that? We should be taking a look at what our schools do, and our schools were taking a look at it. My grandchildren are at The Dalton School here in New York, which is a very famous, old progressive school. I'm just delighted at the way in which the correct answer is not the only thing that they're after—they're also after interesting answers: how you make the journey beyond (just as we're doing on the phone now). I don't know enough about the organization of schools except I know for want of many relationships between teacher and all the students, it's not enough: there's got to be more dialogue with the students talking about possible ways of understanding things. I keep coming back to that word, "possibility." That's what knowing things are. It opens up the realm for the possible, and I don't mean just when you get to be a graduate student at Harvard or McGill—I mean right throughout the entire education process. Teachers enjoy it more; students enjoy it more. Maybe it requires that we somehow get rid of the nailed-down desks and rows…for more of a circle of discussion. I never had the daunting task of administering a school or a school district but I would certainly want to stay away from rigid techniques carrying out the lesson, and that means at every level. I want the Board of Regents here in New York to think about ways of posing questions on a regents examination but check also the extent to which kids have mastered the exploration of the possible on the basis of what it is you already know…so that kids are able to go from what they learned to what else might be possible…extrapolation…going beyond.

Keeping the Discussion Alive

I want to talk a little bit too about the business of "going beyond," that if you know something, where does this lead? It isn't just that you've mastered something, but where does it take you, the extrapolated nature of learning? I say to myself, "it's great for example that there's a journal—like your journal for example—that's opening up this general realm of things." There should be also an opportunity for it to go back to teachers so that they can discuss what we're discussing.

Jerome Bruner is a prominent psychologist, scholar, and educator. He was educated at Duke University and Harvard University, has received numerous honorary doctorates from around the world, and is currently a Research Professor of Psychology and Senior Research Fellow in Law at New York University. He is the author of several landmark texts including *The Process of Education* (1960/1977) and *The Culture of Education* (1996). From the "cognitive revolution" to his current conceptions of the significance of culture, context, and narrative, Dr. Bruner's work and ideas continue to inform our understanding of cognition, learning, and education.