



'The Objective of Education Is Learning, Not Teaching'

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In their book, Turning Learning Right Side Up: Putting Education Back on Track, authors Russell L. Ackoff and Daniel Greenberg point out that today's education system is seriously flawed -- it focuses on teaching rather than learning. "Why should children -- or adults -- be asked to do something computers and related equipment can do much better than they can?" the authors ask in the following excerpt from the book. "Why doesn't education focus on what humans can do better than the machines and instruments they create?"

"Education is an admirable thing, but it is well to remember from time to time that nothing that is worth learning can be taught."
-- Oscar Wilde

Traditional education focuses on teaching, not learning. It incorrectly assumes that for every ounce of teaching there is an ounce of learning by those who are taught. However, most of what we learn before, during, and after attending schools is learned without its being taught to us. A child learns such fundamental things as how to walk, talk, eat, dress, and so on without being taught these things. Adults learn most of what they use at work or at leisure while at work or leisure. Most of what is taught in classroom settings is forgotten, and much of what is remembered is irrelevant.

In most schools, memorization is mistaken for learning. Most of what is remembered is remembered only for a short time, but then is quickly forgotten. (How many remember how to take a square root or ever have a need to?) Furthermore, even young children are aware of the fact that most of what is expected of them in school can better be done by computers, recording machines, cameras, and so on. They are treated as poor surrogates for such machines and instruments. Why should children -- or adults, for that matter -- be asked to do something computers and related equipment can do much better than they can? Why doesn't education focus on what humans can do better than the machines and instruments they create?

When those who have taught others are asked who in the classes learned most, virtually all of them say, "The teacher." It is apparent to those who have taught that teaching is a better way to learn than being taught. Teaching enables the teacher to discover what one thinks about the subject being taught. Schools are upside down: Students should be teaching and faculty learning.

After lecturing to undergraduates at a major university, I was accosted by a student who had attended the lecture. After some complimentary remarks, he asked, "How long ago did you teach your first class?"

I responded, "In September of 1941."

"Wow!" The student said. "You mean to say you have been teaching for more than 60 years?"

"Yes."

"When did you last teach a course in a subject that existed when you were a student?"

This difficult question required some thought. After a pause, I said, "September of 1951."

"Wow! You mean to say that everything you have taught in more than 50 years was not taught to you; you had to learn on your own?"

"Right."



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"You must be a pretty good learner."

I modestly agreed.

The student then said, "What a shame you're not that good a teacher."

The student had it right; what most faculty members are good at, if anything, is learning rather than teaching. Recall that in the one-room schoolhouse, students taught students. The teacher served as a guide and a resource but not as one who force-fed content into students' minds.

Ways of Learning

There are many different ways of learning; teaching is only one of them. We learn a great deal on our own, in independent study or play. We learn a great deal interacting with others informally -- sharing what we are learning with others and vice versa. We learn a great deal by doing, through trial and error. Long before there were schools as we know them, there was apprenticeship -- learning how to do something by trying it under the guidance of one who knows how. For example, one can learn more architecture by having to design and build one's own house than by taking any number of courses on the subject. When physicians are asked whether they learned more in classes or during their internship, without exception they answer, "Internship."

In the educational process, students should be offered a wide variety of ways to learn, among which they could choose or with which they could experiment. They do not have to learn different things the same way. They should learn at a very early stage of "schooling" that learning how to learn is largely their responsibility -- with the help they seek but that is not imposed on them.

The objective of education is learning, not teaching.

There are two ways that teaching is a powerful tool of learning. Let's abandon for the moment the loaded word teaching, which is unfortunately all too closely linked to the notion of "talking at" or "lecturing," and use instead the rather awkward phrase explaining something to someone else who wants to find out about it. One aspect of explaining something is getting yourself up to snuff on whatever it is that you are trying to explain. I can't very well explain to you how Newton accounted for planetary motion if I haven't boned up on my Newtonian mechanics first. This is a problem we all face all the time, when we are expected to explain something. (Wife asks, "How do we get to Valley Forge from home?" And husband, who does not want to admit he has no idea at all, excuses himself to go to the bathroom; he quickly Googles Mapquest to find out.) This is one sense in which the one who explains learns the most, because the person to whom the explanation is made can afford to forget the explanation promptly in most cases; but the explainers will find it sticking in their minds a lot longer, because they struggled to gain an understanding in the first place in a form clear enough to explain.

The second aspect of explaining something that leaves the explainer more enriched, and with a much deeper understanding of the subject, is this: To satisfy the person being addressed, to the point where that person can nod his head and say, "Ah, yes, now I understand!" explainers must not only get the matter to fit comfortably into their own worldview, into their own personal frame of reference for understanding the world around them, they also have to figure out how to link their frame of reference to the worldview of the person receiving the explanation, so that the explanation can make sense to that person, too. This involves an intense effort on the part of the explainer to get into the other person's mind, so to speak, and that exercise is at the heart of learning in general. For, by practicing repeatedly how to create links between my mind and another's, I am reaching the very core of the art of learning from the ambient culture. Without that skill, I can only learn from direct experience; with that skill, I can learn from the experience of the whole world. Thus, whenever I struggle to explain something to someone else, and succeed in doing so, I am advancing my ability to learn from others, too.

Learning through Explanation

This aspect of learning through explanation has been overlooked by most commentators. And that is a shame, because both aspects of learning are what makes the age mixing that takes place in the world at large such a valuable educational tool. Younger kids are always seeking answers from older kids -- sometimes just slightly older kids (the seven-year old tapping the presumed life wisdom of the

so-much-more-experienced nine year old), often much older kids. The older kids love it, and their abilities are exercised mightily in these interactions. They have to figure out what it is that they understand about the question being raised, and they have to figure out how to make their understanding comprehensible to the younger kids. The same process occurs over and over again in the world at large; this is why it is so important to keep communities multi-aged, and why it is so destructive to learning, and to the development of culture in general, to segregate certain ages (children, old people) from others.

What went on in the one-room schoolhouse is much like what I have been talking about. In fact, I am not sure that the adult teacher in the one-room schoolhouse was always viewed as the best authority on any given subject! Long ago, I had an experience that illustrates that point perfectly. When our oldest son was eight years old, he hung around (and virtually worshiped) a very brilliant 13-year-old named Ernie, who loved science. Our son was curious about everything in the world. One day he asked me to explain some physical phenomenon that lay within the realm of what we have come to call "physics"; being a former professor of physics, I was considered a reasonable person to ask. So, I gave him an answer -- the "right" answer, the one he would have found in books. He was greatly annoyed. "That's not right!" he shouted, and when I expressed surprise at his response, and asked him why he would say so, his answer was immediate: "Ernie said so and so, which is totally different, and Ernie knows." It was an enlightening and delightful experience for me. It was clear that his faith in Ernie had been developed over a long time, from long experience with Ernie's unfailing ability to build a bridge between their minds -- perhaps more successfully, at least in certain areas, than I had been.

One might wonder how on earth learning came to be seen primarily a result of teaching. Until quite recently, the world's great teachers were understood to be people who had something fresh to say about something to people who were interested in hearing their message. Moses, Socrates, Aristotle, Jesus -- these were people who had original insights, and people came from far and wide to find out what those insights were. One can see most clearly in Plato's dialogues that people did not come to Socrates to "learn philosophy," but rather to hear Socrates' version of philosophy (and his wicked and witty attacks on other people's versions), just as they went to other philosophers to hear (and learn) their versions. In other words, teaching was understood as public exposure of an individual's perspective, which anyone could take or leave, depending on whether they cared about it.

No one in his right mind thought that the only way you could become a philosopher was by taking a course from one of those guys. On the contrary, you were expected to come up with your own original worldview if you aspired to the title of philosopher. This was true of any and every aspect of knowledge; you figured out how to learn it, and you exposed yourself to people who were willing to make their understanding public if you thought it could be a worthwhile part of your endeavor. That is the basis for the formation of universities in the Middle Ages -- places where thinkers were willing to spend their time making their thoughts public. The only ones who got to stay were the ones whom other people ("students") found relevant enough to their own personal quests to make listening to them worthwhile.

By the way, this attitude toward teaching has not disappeared. When quantum theory was being developed in the second quarter of the twentieth century, aspiring atomic physicists traveled to the various places where different theorists were developing their thoughts, often in radically different directions. Students traveled to Bohr's institute to find out how he viewed quantum theory, then to Heisenberg, to Einstein, to Schrodinger, to Dirac, and so on. What was true of physics was equally true of art, architecture...you name it. It is still true today. One does not go to Pei to learn "architecture"; one goes to learn how he does it -- that is, to see him "teach" by telling and showing you his approach. Schools should enable people to go where they want to go, not where others want them to.

Malaise of Mass Education

The trouble began when mass education was introduced. It was necessary

- To decide what skills and knowledge everyone has to have to be a productive citizen of a developed country in the industrial age
- To make sure the way this information is defined and standardized, to fit into the standardization required by the industrial culture

- To develop the means of describing and communicating the standardized information (textbooks, curricula)
- To train people to comprehend the standardized material and master the means of transmitting it (teacher training, pedagogy)
- To create places where the trainees (children) and the trainers (unfortunately called teachers, which gives them a status they do not deserve) can meet -- so-called schools (again a term stolen from a much different milieu, endowing these new institutions with a dignity they also do not deserve)
- And, to provide the coercive backing necessary to carry out this major cultural and social upheaval

In keeping with all historic attempts to revolutionize the social order, the elite leaders who formulated the strategy, and those who implemented it, perverted the language, using terms that had attracted a great deal of respect in new ways that turned their meanings upside down, but helped make the new order palatable to a public that didn't quite catch on. Every word -- *teacher*, *student*, *school*, *discipline*, and so on -- took on meanings diametrically opposed to what they had originally meant.

Consider this one example from my recent experience. I attended a conference of school counselors, where the latest ideas in the realm of student counseling were being presented. I went to a session on the development of self-discipline and responsibility, wondering what these concepts mean to people embedded in traditional schooling. To me, self-discipline means the ability to pursue one's goals without outside coercion; responsibility means taking appropriate action on one's own initiative, without being goaded by others. To the people presenting the session, both concepts had to do solely with the child's ability to do his or her assigned class work. They explained that a guidance counselor's proper function was to get students to understand that responsible behavior meant doing their homework in a timely and effective manner, as prescribed, and self-discipline meant the determination to get that homework done. George Orwell was winking in the back of the room.

Today, there are two worlds that use the word *education* with opposite meanings: one world consists of the schools and colleges (and even graduate schools) of our education complex, in which standardization prevails. In that world, an industrial training mega-structure strives to turn out identical replicas of a product called "people educated for the twenty-first century"; the second is the world of information, knowledge, and wisdom, in which the realpopulation of the world resides when not incarcerated in schools. In that world, learning takes place like it always did, and teaching consists of imparting one's wisdom, among other things, to voluntary listeners.

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