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## On Becoming Educated

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What is being educated? I used to ask this question of various people at dinner parties when I began full time teaching as a career after some 30 years of using mathematics in research at the Bell Telephone Laboratories. I had learned, somehow, to think as a system's engineer, to view the whole as a whole and not get confused in the details.

The answers I got often made me ask, only partially politely, "Pardon me, but are you not describing what you think you are?" Most people who graduate from college think that they are educated - just ask them! Since one often feels that they are hardly educated in many ways, one is forced to ask oneself "if you are educated?" and what you mean by the word.

A little thought reveals that there are many kinds of educated people, that being educated is simply not a single thing, much as you might wish it to be. An educated doctor is not an educated musician, nor an educated engineer, lawyer, business man, etc. And when we think about people whom we feel are educated we see that there need not be a lot in common.

Now most teaching in schools seems to be based on a belief that being educated is the ability to regurgitate old things that have already been said; that the preparation for their coming life can be handled by telling them what was done in the past, and only this! Past experience is surely a good guide, but it is inadequate in a rapidly changing society! The teachers, believing that they themselves are educated, need only tell the students what they themselves learned (which may or may not have proved to be adequate for their own lives), and need make no preparation for the lives the students are going to lead.

I understand that there are two current theories on how to teach. One is called the "inductive" method and it assumes that if I show the student enough well selected cases that the student will be able to see the general case. The other is that we will simply begin with the general case and tell them, regardless of whether or not they are in any position to grasp what is being said and implied. Clearly both extremes are nonsense, yet both are practiced widely and apparently defended stoutly.

If I am asked to define "being educated" I am apt to reply that ~~it is not a state you arrive at, but rather a process, a style of life.~~

one is not finally "educated" at any moment in time, but rather it is an attitude, a process, a style of life. It is a willingness, nay, an eagerness, to learn new ideas and think new thoughts no matter how long you have lived nor how successfully in your own eyes you have been.

neither endless facts nor great skill in abstract thinking makes an education; both are needed. You need facts to base thinking on, but the facts are not thinking, and cannot replace thinking.

Go on to the fallacies of "you get what you measure" and that the whole is much greater than the parts, and hence the optimization of the parts is often counter productive of becoming educated in any field.

The evil of being a computerite "hardly" differs from being "educated" at all

the optimization of the whole