Questioning Overly Simplistic Solutions


A number of years ago I had the opportunity to participate in a small working group of computer scientists who were addressing problems of computers in education. One of the dominant people in the group was the director of a large computing center. While his initial focus was on the college-level problems created by precollege people teaching computer programming, he quickly expanded the issue. His conclusion was that education in this country would be greatly improved if we would fire all precollege teachers. After he said this several times, I threatened to walk out of the meeting. At that time, I was not able to think of a better way to deal with this type of person.

Interestingly, I recently encountered a somewhat similar situation. This was at a meeting of higher education faculty from science, mathematics, and engineering departments. The purpose of the meeting was to address what these departments might do to improve precollege science and mathematics education. In one of the working groups, a professor made a recommendation that the introduction to our group's report begin by criticizing the Colleges of Education throughout the country because they are responsible for our current educational problems. Indeed, it was clear that his solution to our educational problems would be to abolish Colleges of Education. He repeated this recommendation several times, and soon a number of others in the working group seemed to be supporting it.

Needless to say, my blood pressure began to rise and I became somewhat more than "peeved." It really surprises me when a group of intelligent and well-educated people address a very difficult problem and then fixate on a simplistic proposed solution.

At the same meetings, a different working group discussed the merits of having a special "Mathematics for Elementary Teachers" sequence of courses versus having all preservice elementary teachers just take the "regular" math sequence. The simplistic proposal was that mathematics education at the elementary school level would certainly be improved if the preservice teachers took the regular math courses. Interestingly, the mathematics educators in that working group were able to convince others in their group that it just might possibly be better to have a Mathematics for Elementary Teachers course.

The problems faced by our educational system are immense. There are huge numbers of very bright and well-educated people thinking about and working on ways to solve these problems. The thinkers and doers include teachers, school administrators, parents, school board members, business people, legislators, and so on. One of the characteristics of education is that it is quite easy to propose solutions—even without having a very good understanding of the problems. This is quite different from fields such as science, mathematics, and engineering where there is an assumption that it is necessary to understand a problem before proposing a solution.

The educational system in the United States has a great deal of local control; this leads to a great deal of diversity. Local control and diversity mean that a relatively small group of people...
can identify a problem and address it. A small public or private school has the potential to quickly implement quite major changes in content and teaching methodologies.

The net effect of the local control, coupled with large numbers of private schools, is that our educational system can be considered to be an ongoing collection of research experiments. Moreover, there is a great deal of communication among the experimenters. Thus, if a school in one state has few drop outs and consistently produces far more than its share of national merit scholars, chances are that it will receive a lot of publicity and will have a steady stream of visitors trying to learn how to replicate this success.

The next time you run into a person who loudly proposes "the" solution to our country's educational problems, you might ask them some questions such as the following:

1. What problem are you actually addressing? Could you state it more carefully so that I can understand how implementation of your recommendation will solve it?

2. Is there any research to support your recommendation? Can you give me several examples where your ideas have been implemented and this has led to solving the problem you have stated?

3. Quite often the steps one takes to solve a problem produce new problems. While horse manure problems were reduced by the wide scale use of automobiles, it is clear that the automobile has produces some other problems. If your proposed solution is implemented, what are the types of problems that you foresee will likely result?

Questions such as these can help defuse a tense discussion—or, at least, help lead to a more productive discussion. Just keep in mind that the problems of education are very complex. Most likely a simplistic proposed solution, be it based on technology or not, is suspect.