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The Importance of Numeracy in a Technological Society

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Popular mathematician John Allen Paulos is an advocate for numeracy, claiming that it must take its place alongside literacy as an essential component of education in a complex society. He argues that numeracy will become even more crucial as we confront the mountains of data that will accompany the evolution of sophisticated information technology.

Paulos' conviction about numeracy reminds me of an experience a few years ago in one of my pre-calculus classes, when I observed that I had experienced the best of both worlds as far as computing technology is concerned: I had grown up and been forced to compute without it, but now had the privilege of using it. "Yeah, yeah . . .," a student at the back of the classroom remarked, "and I bet you walked five miles to school every day, too. You sound like my Dad."

I doubt that the student was intending to be complimentary. But I think that I managed to turn that incident to advantage. I sometimes relate this story as I perform a computation on the chalkboard and, as the students reach for their calculators, write the appropriate answer on the board while remarking that for those of us who walked five miles to school every day, such an estimation is a piece of cake.

Now, I do not expect anyone to be persuaded that walking exercises the estimation cells in the brain. Nor do I anticipate a great deal of nostalgia for the good old days of log tables and slide rules. But there was in the use of those methods of computation the necessity to think consciously about the sizes of the numbers involved. "Is that in the order of hundreds, or thousands, or tenths, or hundredths?" A significant computation could not be performed without confronting and answering this question several times.

The development of facility with numbers, of which skill at estimation is but one facet, is not a passive enterprise. It requires conscious effort. Memorizing a host of formulas or techniques does not in and of itself develop numeracy. Engaging in repeated drills does not do it either. Nor does the exposure to calculators and computers. The development of numerical facility requires concentrated effort, often more demanding than that of walking five miles to school every day. It is the effort of understanding the logic behind the solution to a problem. That aspect of numeracy has not changed, nor is it about to, even with the development of smarter and smarter computers.