

In Edsger's Words

A selection of favorite quotes collected from Vicki Almstrum, Tony Hoare, Niklaus Wirth, Wim Feijen, and Rajeev Joshi. Bracketed supplemental information after many quotes indicate dates when the statement was spoken or published, translations, or other clarifying information known to the person submitting the quote.

Advice to a promising researcher: "Only do what only you can do."

"The problems of the real world are those that remain when you ignore their known solutions."

"Always design your program as a member of a whole family of programs, including those that are likely to succeed it."

"Avoid operational reasoning like the plague."

"Separate concerns."

"The prisoner falls in love with his chains."

"A programming language is a tool that has a profound influence on our thinking habits."

"I pray daily that more of my fellow programmers may find the means of freeing themselves from the curse of compatibility."
[1972, Turing award lecture]

"The program and the correctness proof grow hand in hand." [1972, Turing award lecture]

"Brainpower is by far our scarcest resource." [1972, Turing award lecture]

"In their capacity as a tool, computers will be but a ripple on the surface of our culture. In their capacity as intellectual challenge, they are without precedent in the cultural history of mankind." [1972, Turing award lecture]

"The competent programmer is fully aware of the strictly limited size of his own skull; therefore he approaches the programming task in full humility, and among other things he avoids clever tricks like the plague." [1972, Turing award lecture]

"For the absence of a bibliography I offer neither explanation nor apology." [foreword to *A Discipline of Programming*, Prentice-Hall, 1976]

"Progress is possible only if we train ourselves to think about programs without thinking of them as pieces of executable code."
[August 23, 1979]

"This solution is gloriously non-deterministic." [August 23, 1979]

"My daughter and I taking a shower with equal frequency is a frightening thought for both of us." [February 21, 1984; commenting on a mutual exclusion algorithm in which the two components are alternately granted access to the critical section.]

"De plichten van een docent zijn divers, die van het gehoor ook." ["The duties of a teacher are several, but those of the audience as well."]

"Ik hou van wiskunde, maar spaar me de mathematen." ["I love mathematics, it's the mathematicians I cannot stand."]

"If somewhere you read 'in depth', ignore it."

"Nothing is as expensive as making mistakes."

"Program testing can at best show the presence of errors, but never their absence."

"Software Engineering is Programming when you can't."

"We must give industry not what it wants, but what it needs."

"Waiting is a very funny activity: you can't wait twice as fast."
[February 28, 1984]

"It helps hand-eye coordination if, as you're doing your formulae, you gently sing the notation." [September 1, 1992]

"Do not try to change the world. Give the world the opportunity to change itself." [April 21, 2000]

"While current curricula extensively teach existing mathematics, they pay scant attention to the doing of mathematics, i.e., to the question of how to design and to present solutions. If any attention to these issues is paid at all, they are treated separately: design of solutions, i.e., "problem solving" or "mathematical invention", is viewed as a psychological issue, as a matter of mathematical intuition, while presentation is viewed as a matter of personal style or as an issue of education. Most mathematicians consider psychology and pedagogy as sciences too soft to be respectable, and consequently the subject of how to do mathematics has almost been tabooed." [foreword to *On the Shape of Mathematical Arguments*, A. J. M. Van Gasteren, Lecture notes in Computer Science, edited by G. Goos and J. Hartmanis, Springer-Verlag, 1987]

"Teaching to unsuspecting youngsters the effective use of formal methods is one of the joys of life because it is so extremely rewarding. Within a few months, they find their way into a new world with a justified degree of confidence that is radically novel for them; within a few months, their concept of intellectual culture has acquired a radically new dimension. To my taste and style, that is what education is about. Universities should not be afraid of teaching radical novelties; on the contrary, it is their calling to welcome the opportunity to do so." ["On the Cruelty of Really Teaching Computing Science," *CACM*, 32(12), December 1989, page 1404]

"So-called "natural language" is wonderful for the purposes it was created for, such as to be rude in, to tell jokes in, to cheat or to make love in (and Theorists of Literary Criticism can even be content-free in it), but it is hopelessly inadequate when we have to deal unambiguously with situations of great intricacy, situations which unavoidably arise in such activities as legislation, arbitration, mathematics or programming." [foreword to *Teaching and Learning Formal Methods*, edited by C. N. Dean and M. G. Hinchey, Academic Press, 1996]

"I mean, if 10 years from now, when you are doing something quick and dirty, you suddenly visualize that I am looking over your shoulders and say to yourself, "Dijkstra would not have liked this", well that would be enough immortality for me." ["Introducing a course on calculi" (EWD 1213), August 1995]

"Many mathematicians derive part of their self-esteem by feeling themselves the proud heirs of a long tradition of rational thinking; I am afraid they idealize their cultural ancestors." ["A stupid notation" (EWD 782)]

"The traditional mathematician recognizes and appreciates mathematical elegance when he sees it. I propose to go one step further, and to consider elegance an essential ingredient of mathematics: if it is clumsy, it is not mathematics." ["On the Economy of doing Mathematics" (EWD 1130), June 1992]

"Don't compete with me: firstly, I have more experience, and secondly, I have chosen the weapons." [During first lecture in "Capita Selecta", August 29, 1996]

"Aim for brevity while avoiding jargon." [Lecture in "Capita Selecta", September 5, 1996]

"Maintaining a large range of agilities — mental and physical — requires regular exercise [...]. That is why the capable are always busy." [Lecture, "Capita Selecta", October 10, 1996]

"Mathematicians are like managers — they want improvement without change." [During a meeting of the Austin Tuesday Afternoon Club, Fall 1996]

"And even now my first reaction to formulae, written by someone else, is one of repulsion — in particular when an unfamiliar notational convention is used — and when reading an article, my natural reaction is to skip the formulae." ["My hopes of computing science" (EWD 709)]

"Show any mathematician a really elegant argument that is new for him: at the moment it becomes his intellectual property, he starts to laugh!" ["My hopes of computing science" (EWD 709)]

... I had already come to the conclusion that in the practice of computing, where we have so much latitude for making a mess of it, mathematical elegance is not a dispensable luxury, but a matter of life and death." ["My hopes of computing science" (EWD 709)]

"For me, the first challenge for computing science is to discover how to maintain order in a finite, but very large, discrete universe that is intricately intertwined. And a second, but not less important challenge is how to mould what you have achieved in solving the first problem, into a teachable discipline: it does not suffice to hone your own intellect (that will join you in your grave), you must teach others how to hone theirs. The more you concentrate on these two challenges, the clearer you will see that they are only two sides of the same coin: teaching yourself is discovering what is teachable." ["My hopes of computing science" (EWD 709)]