THE FUTURE OF ENGINEERING EDUCATION

Introduction to a Series

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In the Spring 1990 semester, I spent a most enjoyable sabbatical semester at Georgia Tech, where I worked with Ron Rousseau on the initial stages of the revision of *Elementary Principles of Chemical Processes.* At the same time, I was wading through a mountain of books and papers on cognitive psychology, educational psychology, and science and engineering education, building up my background for a longitudinal study of engineering education for which the NSF had just provided funding.

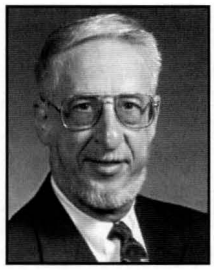
The research I was immersed in led me to several observations. First, there was a lot of stuff out there in the literature, some of which I found particularly relevant to my courses and my students. Second, few engineering professors would ever have the time or inclination to wade through all of it in search of something they could use. It occurred to me that as long as I was going through the exercise of distilling the literature, it might be useful to my colleagues if I shared the fruits of my labors. It also occurred that it would make little sense for me to do it alone, since I knew of other engineering educators who had thought about these issues far more than I had and had a much deeper knowledge of the literature.

At that point I conceived of a series of survey articles in *Chemical Engineering Education,* coauthored by highly knowledgeable educators with me riding their coattails. Among the most knowledgeable chemical engineering educators I knew at the time—and still among the most knowledgeable—were (in alphabetical order) Armando Rugarcia of the Universidad Iberoamericana in Mexico, Jim Stice of the University of Texas, and Don Woods of McMaster University in Canada. I invited them to participate and was delighted when all three accepted. The North American quartet got to work immediately.

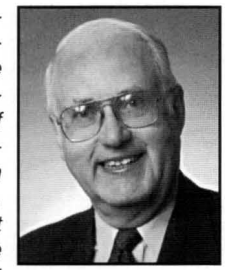
Then life happened.

Armando became Rector of his university, Jim started running all over the country giving teaching workshops, and Don became a self-contained book-of-the-month club as his problem-based learning approach became an international paradigm for effective instruction. Also, owing to the incessant time demands of the book revision, the longitudinal study, and my own teaching workshops, I became the worst offender of all. But at length we picked it up again, thanks mostly to Don's unflagging energy and initiative, and the series finally came into existence.

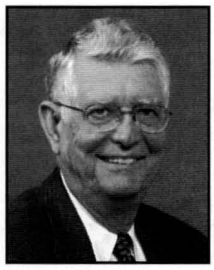
The first two papers follow in this issue, and the remaining four will appear in subsequent issues. The first paper sets the stage and previews the structure of the series, so I won't do so here. I will just say that it has been a privilege and pleasure to work with such outstanding educators and good friends as my coauthors. I have been inspired by their ideas for many years. I hope their enthusiasm and love of their work comes through in these papers and inspires the readers in the same way. ❐



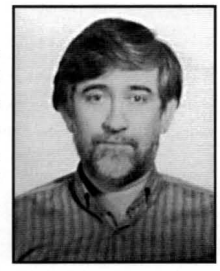
Richard M. Felder *is Hoechst Celanese Professor (Emeritus) of Chemical Engineering at North Carolina State University. He received his BChE from City College of New York and his PhD from Princeton. He has presented courses on chemical engineering principles, reactor design, process optimization, and effective teaching to various American and foreign industries and institutions. He is coauthor of the text* Elementary Principles of Chemical Processes *(Wiley, 2000).*



Donald R. Woods *is a professor of chemical engineering at McMaster University. He is a graduate of Queen's University and the University of Wisconsin. He joined the faculty at McMaster University in 1964 after working in industry, and has served as Department Chair and as Director of the Engineering and Management program there. His teaching and research interests are in surface phenomena, plant design, cost estimation, and developing problem-solving skills.*



James Stice *is Bob R. Dorsey Professor of Engineering (Emeritus) at the University of Texas at Austin. He received his BS degree from the University of Arkansas and his MS and PhD degrees from Illinois Institute of Technology, all in chemical engineering. He has taught chemical engineering for 44 years at the University of Arkansas, Illinois Tech, the University of Texas, and the University of Wyoming. At UT he was the director of the Bureau of Engineering Teaching and initiated the campus-wide Center for Teaching Effectiveness, which he directed for 16 years.*



Armando Rugarcia *graduated from the Universidad Iberoamericana (UIA) in 1970 and went on to earn his MS in chemical engineering from the University of Wisconsin in 1973 and his Doctorate in Education from West Virginia University in 1985. He has been a full-time professor of engineering at UIA since 1974 and was chair of the Chemical Engineering Department there from 1975 to 1980. He was also Director of the Center for Teaching Effectiveness at UIA from 1980 until 1986. He has written four books on education, one on process engineering, and more than 130 articles.*