

## Deming in Higher Education

### *Correspondence with faculty members*

A few years ago, I published an article in the *Industrial Physicist Magazine* titled, “Physicist Transformed the Quality of Management.” It generated a couple letters to the editor, and I was asked to respond to those letters in subsequent issues of the journal. Following are two of the letters and my replies.

“I try very hard to help my students learn chemistry and physics. Part of my job is to turn in grades at the end of the semester. How can I determine student performance when there are so many variables?”

Brent E. Wurfel  
Assistant Professor of Chemistry  
Arkansas State University  
Mountain Home, Arkansas

Dear Brent:

In a stable system, you really can't separate student performance from all the other variables that influence test scores and other assessments. Unfortunately, traditional grading practices confound the student with all those other variables. Since most of us are required to submit grades, however, here are some approaches for your consideration.

For all students whose scores on your assessments are different, but not significantly different, submit a grade of A. For any students who fall outside the system on the high side (i.e., have significantly high scores – though I have never had one in my classes), submit an A+. For students who fall outside the system on the low side (i.e., significantly low scores), provide special help and, for the time being, submit a grade of I (incomplete).

A more common approach among faculty trying to apply Deming's principles in their classrooms is the following. Clearly define and communicate your course objectives and requirements at the beginning of the semester. For all students who fulfill those requirements, submit a B at the end of the semester. For all students who go above and beyond those requirements (for example, they may conduct, write up and submit three or four extra lab projects), submit an A. For those students who fail to complete all core objectives, submit an I (incomplete).

Finally, you may consider the grading system that Dr. Deming himself used during his decades of service on the faculty of New York University. He told all of his students at the beginning of each semester that their final grade would be an A. “Come here to learn, not to get a grade,” he'd say. Having removed the extrinsic grade as a concern among his students, he was able to concentrate – and help them concentrate – on learning.

“Your article in the September issue about the principles of W. E. Deming’s management ideas was very intriguing. As I have never heard about this before, I would like to ask you to give me a few references with which I could start exploring this subject in more depth. As a soon-to-be physics Ph.D. who is thinking about a nonacademic career, I feel that this would be very valuable.”

Winfried Teizer  
Department of Physics and Astronomy  
University of Massachusetts at Amherst  
Amherst, Massachusetts

Dear Winfried:

I recommend as a starting point the following texts:

W. E. Deming, *The New Economics for Industry, Government, Education*, MIT Center for Advanced Educational Services, Cambridge, MA (1993).

W. E. Deming, *Out of the Crisis*, MIT Center for Advanced Educational Services, Cambridge, MA (1986).

P. Senge, *The Fifth Discipline: The Art and Practice of the Learning Organization*, Doubleday, New York, NY (1990). Although Senge does not address Dr. Deming and his principles *per se*, this text provides a wonderful treatment of systems theory and thinking.

If you’re interested in seeing how Deming’s principles can be applied to education, you may want to look at my own text, *The New Philosophy for K-12 Education: A Deming Framework for Transforming America’s Schools*, ASQ Quality Press, Milwaukee, WI (1996).

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