

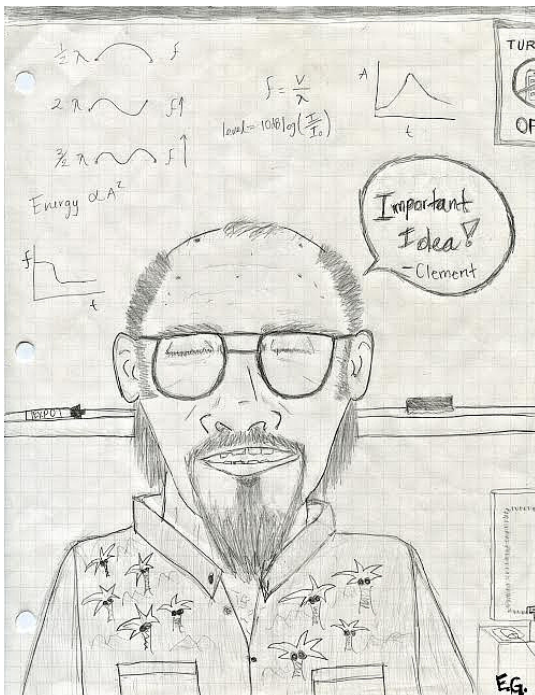
Meet a Mentor

John Clement

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I grew up on a family turkey farm in far upstate NY...

... in the middle of the snow belt. I attended Mannsville-Manor High School and graduated as valedictorian from a class of 20 seniors. My mother always joked that the community had two seasons winter and August. Well it actually snowed one August, but with the increasingly warm climate the summers there are now hot and they had to cancel the sled dog races due to lack of consistent winter snow.



I am a retired physicist with a BS from Cornell (1965), M Eng. (Physics) (1966) from Cornell, and a PhD from Rensselaer Polytechnic Institute (1974). I went to RPI because it had been praised for its quality of physics teaching. After a post-doc at Duke U, I was a research staff member in the nuclear physics lab at Rice U, for 20 years. After leaving Rice I taught HS physics for 12 years. I currently teach part time at Lonestar College in Houston as adjunct faculty.

Research has shown that "style" is irrelevant to learning. A study in the early '90s at ASU showed that all students in lecture courses had the same dismal gain in learning no matter what the teacher's style or emphasis was. The good news is that instructors can

learn how to structure the course so as to achieve high learning gain. It is all about what you do in class, not the style of doing it. When I was taking courses at Sam Houston U for HS certification, one course had us do some literature research on teaching. I discovered the Journal of Research in Science Teaching, and proceeded to avidly read my way through many of the more recent issues. I also discovered the work of various physics researchers engaged in PER (Physics Education Research).

I made a conscious decision to use these results to radically change what I do in class. Change is hard. So I started with just reforming the lectures some by using Mazur's concep questions. Then I attended a workshop by Laws, Thornton, and Sokoloff. I integrated some of their materials into my classes. The Minds on Physics books by Leonard et. al. from U. Mass provided text books that I could lean on rather than fight. Finally I attended a Modeling workshop at ASU and used their framework.

Actually my interest in teaching went way back to HS. I tutored a fellow student, who many years later told me that my help made it possible for him to get through college and become a physics teacher. Comments by some of my former HS students have gotten back to me and some have said that I made it possible for them to get through college. My big interest is in raising the student's ability to reason, and I have been able to show some gain using a test designed by Anton Lawson. I have given several talks at AAPT, math, and computer science conferences about applying the results of PER and raising student thinking.

I have always been a tinkerer and started in the mid 50s with photography and electronics. I took many pictures and even developed my own negatives. Then I started taking 3D pictures, which is my preferred format.



I learned computer programming, and still write some physics simulated experiments and some video processing plug-ins. Video, audio, and photo restoration as well as genealogy are ongoing projects. Some of my restorations are on YouTube and I have articles on Archive.org. I do international folk dancing (folkdancers.org), as well as sing in two choirs. I also teach folk dancing. I am happily married with two children, one working for IBM, and the other pursuing a PhD in chemistry.