the legacy project

Rodney L. Custer, DTE

by Rodney L. Custer, DTE and Johnny J Moye, DTE

Many industrial arts, technology education, and now technology and engineering education leaders have made their mark on our profession. Their legacy is something that members of the profession enjoy and have a responsibility to continue and build upon.

This is the thirteenth in a series of articles entitled "The Legacy Project." The Legacy Project focuses on the lives and actions of leaders who have forged our profession into what it is today. Members of the profession owe a debt of gratitude to these leaders. One simple way to demonstrate that gratitude is to recognize these leaders and some of their accomplishments. The focus in this issue will be on Dr. Rodney Custer, DTE.

Rodney L. Custer, DTE

Provost and V.P. for Academic Affairs
Black Hills State University
Spearfish, South Dakota (2011-present)

Place of Birth: Quinter, Kansas

Married to: Marvis L. Custer (47 years in 2018).

Degrees:
Ph.D., University of Missouri-Columbia, Technology Education (Industrial Engineering emphasis)
M.S., Fort Hays State University, Industrial Education
B.S., Fort Hays State University, Industrial Education
M.Div., Bethany Theological Seminary, Oak Brook, IL
B.A., McPherson College, McPherson, KS, Psychology

Rodney L. Custer, DTE

Occupational History:

2011-present: Black Hills State University:
Provost and Vice President for Academic Affairs. The position provides senior level administrative leadership to the University including oversight of academic affairs, sponsored programs, institutional research, assessment and accreditation, the research office, and educational outreach.

2006-2011: Illinois State University, Associate Vice-President for Research, Graduate Studies, and International Education. The position provided oversight and leadership to Illinois State University's Graduate Programs, the Office of Research and Sponsored Programs, the University's Ethics and Compliance Office, the Office of International Studies and Programs, and the Center for Mathematics, Science, and Technology. Member of the Provost's senior staff, worked directly with the President's office on a variety of activities involving interaction with Illinois' congressional delegation. Directly responsible for developing and pursuing funding for ISU's federal initiatives and worked intensively with the ISU faculty and administration to facilitate the pursuit of extramural funding for ISU through competitive grants.

1997-2006: Department Chairperson, Department of Technology. The department was located in the College of Applied Sciences and Technology (CAST) and housed a variety of workforce-development undergraduate programs, including technology teacher education, construction management, network computing systems, integrated manufacturing systems, and graphic communications. Graduate programs were also offered in technology teacher education, training and development, and project management.

1996-97: University of Missouri-Columbia, Program Leader, Technology and Industry Education Program Area. Program coordination responsibilities included course scheduling, facility and equipment management, curriculum planning and coordination, and working with the Missouri State Department of Education on a variety of program and workforce development initiatives and funded projects.

September 1991-1997: Assistant Professor, College of Education

September 1989-1991: Instructor, College of Education National Science Foundation

August 1995-August 1996: Program Officer, Division of Elementary, Secondary, and Informal Education, Washington, DC. Responsibilities included managing and coordinating review panels, negotiating funding, promoting NSF program initiatives and monitoring project quality.

1983-1989: McPherson College, Assistant Professor

You were a minister before being a teacher, university professor, and higher education administrator. Why did you migrate towards education and what we know today as technology and engineering education?

The transition isn't actually as much of a stretch as it might seem. I grew up on a farm in northwest Kansas. Dad was very good with his hands and did almost everything himself. I can't remember when I learned how to do much of what I know how to do. It was just part of growing up on a farm with a dad who knew how to do everything. He and a friend started Flex King, a farm implement manufacturing company. It was very successful and had a major impact on the local and regional economy. I worked there from 14 years old until going to seminary. During my last couple of years, I was the shop foreman in charge of the welding and machine shops. So actually, the move into the ministry was the disruption. After three years of seminary and four wonderful years in the pastoral ministry, the move back into technology was natural. It was also somewhat accidental. I took a sabbatical in order for my wife to return to Fort Hays State University to complete her nursing degree. During that time I worked for a high-end custom cabinet shop. One thing led to another, and I ended up teaching technology at McPherson College, never returning to the pastorate.

Your initial secondary teaching was in rural Nebraska. What did you teach in your industrial arts shop? What were the concepts, ideas, and skills that were important at that time? Do you ever regret leaving the classroom?

Actually, I never did go into secondary level teaching. I was preparing to do so at Fort Hays State University, but then McPherson College called with an offer to teach in its old-car restoration program. I didn't know much of anything about old cars, but I had experience with almost everything associated with auto body, including painting, woodworking, metal fabrication, welding, etc. I had to learn things quickly. They hired me to help bring some academic rigor and quality to a program that consisted primarily of hands-on craftsmanship. I taught there for six years until leaving for Mizzou (University of Missouri) and doctoral studies.

Your career has been tremendously diverse, spanning from vocational education, industrial arts, technology education,

and technical education, engineering education, to STEM education in no certain order. You seemed to move from one to the other with ease. How did you accomplish that without getting into divisive philosophical discussions with your colleagues? And, was all the discussion about being purely one or the other really important?

Interesting question. I enjoyed the process of sorting out the distinctions. It was rather confusing, but in retrospect helpful to have been exposed to how the profession was conceptualized in several different states and universities. In Kansas and at Fort Hays, the emphasis was more on technology education/industrial arts as general education. When I moved to Missouri, technology education was structured within vocational education. In Illinois, it was a rather confusing mix of the two. So I spent quite a lot of time sorting this out philosophically. I recall some very heated and contentious times back when I was more involved with the vocational side (AVA). The leadership of the two leading organizations (AVA and ITEA) did not always play well together. Part of this had to do with philosophy, and frankly some of it came down to personalities. It was a complex time of change, and I felt like I had a good understanding of both. I think we could have done a better job of getting along.

When you were a university department chair administrator and working with the Center for Math, Science, and Technology (CeMast), you were working with innovative ideas for that time that merged disciplines. Why did you even begin the Center in the first place, and what were you trying to accomplish?

Yes, I was department chair of technology at Illinois State University for nine years. Our programs included construction management, manufacturing, graphics, computing systems, and technology education. During that time, the department and I worked closely with CeMaST. A key leader of the Center was Franzie Loepp along with John Dossey in mathematics. They were terrific leaders and were extremely successful with the IMaST curriculum, funded substantially by NSF. So, we worked closely with them on some curriculum projects. More importantly, we benefited from the Center's creative and innovative ideas, particularly related to STEM integration. But I must be clear. The genius of CeMaST was Franzie, John, and their team.

An important focus of your career was when you accepted a position with the National Science Foundation as a rotator from your university. How were you able to advance the profession in this capacity, what got accomplished, and what did you learn that you took back to the university and profession?

This, quite simply, was a career-maker for me. In some respects, NSF did more for me than I did for NSF. I was at the front end of my time as a grant writer and had only received one NSF grant at that point. I learned so much about NSF, the grant-writing and review process, how grant solicitations are developed, and much more. This was also my first real exposure to the National Academies, the National Research Council, AAAS, and other federal agency personnel. Gerhard Salinger and I were the two voices within the foundation advocating for technology education. I thoroughly enjoyed getting to know Gerhard and learned so much from him. The profession owes him a tremendous debt of gratitude for helping to leverage technology education onto the national STEM education agenda. Regarding my influence, I was able to encourage some folks in our profession to take advantage of the opportunities for extramural funding of their work. We did this by bringing colleagues in to serve as review panelists (still a huge professional development opportunity) and by reviewing proposal ideas. The time at NSF was one of the high points in my career. One quick story: At one point during my time at NSF, I asked my appointed mentor "about what percentage of program officers (rotators) go back to their university and get an NSF grant." He smiled and replied, "Approximately 100%." He was right!

Technology and engineering have had a continuing relationship since their beginning in education. You were a very active promoter of moving technology education even closer to engineering through your work. Why did you pursue this interest, and how did it evolve during the later part of your career?

I've been interested in engineering since high school and before. My first college major was architectural engineering at Kansas State University. Coming from a small, rural high school in western Kansas, I was woefully underprepared for the rigors of engineering education and transferred to McPherson College and a major in psychology for my sophomore year. The interest in engineering persisted over the years, largely through my interest and background in hands-on activities. So when looking for doctoral programs, one important selection criteria was finding a school that would allow me to do both education and engineering. So there I was, doing graduate-level engineering at a major research university. They required me to take the calculus sequence prior to entering the program. It's amazing what some years and maturity will do for you. This time through, the calculus made perfect sense, and I found that my experience with applied things, along with good writing and conceptualizing skills, were a distinct advantage. I must say that, while the move of the profession toward a closer alliance with engineering is generally a good thing, I continue to have some grave concerns about some of the limitations. Many in our profession underestimate the rigors of engineering, and the engineering culture is distinctly different from education. In my judgment, we still have a long way to go in sorting out this complex relationship, and considerable work remains to be done to build a mutually respectful relationship between the two fields. You ask how my involvement has evolved. Over a number of recent years and through a $3M NSF grant, a team of us have been doing professional development with cohorts of life and physical science teachers, helping them infuse engineering into their science classes, which is a key element in *Next Generation Science Standards*. It has been a tremendous learning experience and has further convinced me of the value of aligning engineering, science, and technology.

A person who has been in the profession as long as you must have an idea of what you would like to see in an ideal program in the public schools at this point in history. How would you describe the goals and characteristics of such a program?

I will be candid. We have, as a technology education profession, been too territorial. In my judgment, based on working closely with technology and science teachers as well as engineering educators, students would benefit tremendously from a rich combination of science, technology, and engineering. Technology and engineering provide the engaging, applied element. Scientific and mathematics knowledge is terribly important to being able to do many of the hands-on activities in an informed and intelligent manner. In addition, science and math are in (and are valued in) every high school in America. I have seen the two work together with terrific results, and I have witnessed the two struggle as they seek to maintain their respective silos. My sense is that if engineering (and perhaps technology) are to succeed in the American public school system, a close and vibrant alliance with our science colleagues will be essential. We both have something the other needs. Standing alone, I worry that technology and engineering will never amount to much more than an elective for the few who may have an interest in more applied activities. And science will continue to struggle for relevance and student engagement. But together, engineering and technology through science could assume a vital role in the education of all students. They will better understand "how this stuff is used in the real world." Career opportunities will be better understood, and students will be better engaged and motivated to learn. It's a tough shift, but there is tremendous value in shifting the focus away from maintaining the distinctiveness of the disciplines to how to engage students in STEM-oriented learning.

Thank you Dr. Custer for your service to the profession and for sharing some of the highlights of your career.

The Legacy Project has now interviewed thirteen very influential leaders. It is beneficial for current (and future) leaders to read about the issues that existed and how they were addressed "back in the day." In a few months the next interview will appear in this journal. If you have a suggestion of a leader to recognize, contact Dr. Moye with that person's name and contact information.

Rodney L. Custer, DTE, *was an NSF program manager, technology and industry education program manager, Associate Vice-President for Research, Graduate Studies, and International Education at Illinois State University, and is currently Provost and Vice-President for Academic Affairs at Black Hills State University.*

Johnny J Moye, Ph.D., DTE, *serves as ITEEA Senior Fellow. He is a retired U.S. Navy Master Chief Petty Officer, a former high school technology teacher, and a retired school division CTE Supervisor. He currently serves as an adjunct professor with Old Dominion University's STEMPS department. Johnny can be reached at johnnyjmoye@gmail.com.*