
AC 2012-3045: CHOOSING THE ROAD LESS TRAVELED: TEN YEARS LATER

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Lisa G. Bullard is a teaching professor and Director of Undergraduate Studies in the Department of Chemical and Biomolecular Engineering at North Carolina State University. She received her B.S. in chemical engineering from NC State and her Ph.D. in chemical engineering from Carnegie Mellon University. She served in engineering and management positions within Eastman Chemical Co. from 1991-2000. A faculty member at NCSU since 2000, Bullard has won numerous awards for both teaching and advising, including being named as an NCSU Alumni Distinguished Undergraduate Professor, the ASEE Raymond W. Fahien Award, the John Wiley Premier Award for Engineering Education Courseware, NCSU Faculty Advising Award, National Effective Teaching Institute Fellow, NCSU Alumni Outstanding Teacher Award, George H. Blessis Outstanding Undergraduate Advisor Award, ASEE Southeastern Section New Teacher Award, and ASEE-ERM Apprentice Faculty Grant Award. Bullard's research interests lie in the area of educational scholarship, including teaching and advising effectiveness, academic integrity, process design instruction, and the integration of writing, speaking, and computing within the curriculum.

Prof. Penny M. Knoll, Montana State University

Penny Knoll is an Associate Professor and Program Coordinator for the undergraduate Construction Engineering Technology (CET) and master's of construction engineering management (MCEM) in the Department of Civil Engineering at Montana State University. She received her B.S. in construction and a master's in science in construction management from Arizona State University. Her professional construction career spans from 1988 to 2000, working for two commercial general contractors and owning her own design-build firm in Phoenix, Ariz. She joined the faculty at Montana State University in Jan. 2000 as an Adjunct Instructor in CET/MCEM and has risen through the ranks to a tenured professional practice track faculty member. Knoll has won three Teaching in Excellence awards during her tenure at MSU and has served or is serving on several national committees, currently the Board of Governors for the American Institute of Constructors (AIC), the Associated Schools of Construction Region 6 Director from 2006 to 2009, and the Educational Chair for the State Chapter of the National Association of Home Builders from 2003 to 2006. Knoll's collaboration with the local and state chapters of AGC and NAHB are key to her program's success. She coordinates the career internship program for the Department of Civil Engineering each summer. Knoll's teaching interest lie in the area of construction project management; safety and overall leadership skills required for students to be successful in their careers.

Dr. Ann Saterbak, Rice University

Ann Saterbak is professor in the practice of bioengineering education and Associate Chair for Undergraduate Affairs for the Bioengineering Department at Rice. She earned her undergraduate degree in chemical engineering and biochemistry at Rice in 1990 and a doctorate in chemical engineering at the University of Illinois, Urbana-Champaign. After working at Shell for several years, she returned to Rice in 1999, where she was in on the ground floor of the nascent Bioengineering Department. Saterbak has developed laboratory courses in tissue culture, tissue engineering, bioprocessing, systems physiology, and mechanical testing. For that work, she received an ASEE National Award, the Robert G. Quinn Award for Excellence in Laboratory Instruction. She has also implemented new pedagogical methods and teaching standards to broaden students' problem solving skills, scientific and technological literacy through real-world problems, problem- and project-based learning, and hands-on experiences. She also teaches Introduction to Engineering Design (ENGI 120) for the Rice Center for Engineering Leadership. In 2011, she won the George R. Brown Prize for Excellence in Teaching, the university's highest teaching award.

Choosing The Road Less Traveled – Ten Years Later

Abstract

In 2002 the authors made a presentation at ASEE entitled, “Choosing the Road Less Traveled: Alternatives to the Tenure Track.”¹ Three engineering educators with less than three years of experience related how their interests, priorities, and family situations led them to seek out non-tenure track faculty positions. From their perspective as new faculty, they candidly discussed the benefits as well as the drawbacks of the paths they had taken. The original presentation concluded by saying, “At this point the biggest unknown is the long-term satisfaction in and evolution of their non-traditional academic roles.”

Ten years later, all three remain at their original institutions, and their careers and professional lives have developed in both expected and unexpected ways. With the benefit of that perspective, the authors share how their professional roles have developed over a decade, how they are regarded within the department, and their satisfaction with the work and life balance that their roles provide. This is an important area of discussion because studies show that approximately 65 percent of all new faculty appointments in academia are now non-tenure track, with part-time non-tenure-track faculty appointments making up the bulk of that percentage. The authors share insight into the benefits of the non-tenure-track role and how that role may change over time.

Introduction

In the last decade universities increasingly have come to depend on non-tenured and nontraditional faculty. In 2001, 30% of faculty at the University of North Carolina Chapel Hill held fixed term appointments, while in 2011 40% do.² In some cases this is a result of budget cuts that provide incentives for departments to fill teaching gaps with lecturers or adjunct faculty, while other universities have been proactive in creating assistant, associate, and full professor “tracks” referred to as “Teaching Professor” or “Professor of the Practice” in order to establish a career ladder for teaching-focused faculty. The expectations of these faculty vary greatly depending on the institution and department, including teaching, service, administration, and research/publishing either in traditional engineering areas or in the area of educational scholarship.

These positions hold both opportunities and challenges for faculty who choose this path. While relieved of the expectation of funded research and graduate student supervision, they may not have the job security that comes with tenure, since fixed-term faculty members are usually on one, three, or five year contracts. Faculty in these positions may not be eligible to receive university teaching awards or serve on certain committees or teams. In many academic departments, only tenure track faculty may vote on department decisions.

What is the career progression of such a position? How do these faculty members feel about it after a decade serving in this role? What are the tradeoffs and benefits of such a position compared to a traditional tenure track position? What changes if the non-tenured position turns

into a tenured position? This paper will explore the perspectives of three engineering faculty members who have made this career choice.

Faculty Member #1: The first faculty member is 48 years old and a Teaching Professor in the Chemical and Biomolecular Engineering Department at North Carolina State University. She graduated with a B.S. in Chemical Engineering in 1986 and a Ph.D. in Chemical Engineering in 1991. She joined Eastman Chemical Company in 1991 and worked in several different positions there, including Process Engineering, Plant Engineering, Six Sigma Quality, and Marketing. In April of 2000 she joined the Chemical and Biomolecular Engineering Department at North Carolina State University as a Visiting Assistant Professor. Her title was changed to Lecturer and Director of Undergraduate Studies in 2002. Around 2004 the university instituted a new “Teaching Professor” track with assistant, associate, and full professor levels, and she was classified as an Assistant Professor in 2005, achieved Associate Professor status in 2007, and was named a full Teaching Professor in 2011. She has developed course materials for three core courses as well as widely used materials and videos on academic integrity materials. She is currently the Director of Undergraduate Studies and coordinates advising and curricular issues at the undergraduate level. She has been married for 22 years to an environmental engineer who works for a consulting company, and they have a 17 year old daughter.

How has your position changed in the last ten years?” Ten years ago (two years into my new position), I felt that I was still transitioning after the move from industry to academia. I was on the steep part of the learning curve, mastering the basics of effective teaching, intricacies of the advising process, aspects of counseling students, and ABET requirements. Early on I began to attend ASEE meetings, seek out training and mentoring in effective teaching methods, and network with other educators in areas of common interest. This led me to get involved in projects outside the university that gave me additional exposure and expanded my interests. The first five years of my career were spent laying the foundation: working hard to become a good teacher and advisor, learning the university’s and the department’s processes for getting things accomplished, and establishing relationships with others in engineering education both inside and outside my institution.

The last five years have been some of my most productive in terms of publishing, teaching effectiveness, innovation, and collaboration. I have published 17 peer-reviewed articles in the area of engineering education, developed teaching materials that I share on my faculty web site, given workshops on teaching and advising both inside and outside the university, and served as a co-PI on three NSF funded proposals. I also mentor new faculty and frequently teach a parallel section of the entry level sophomore course with them. This year I supervised a ‘teaching team’ of three young faculty teaching parallel sections of the same course. It is very rewarding to be able to coach and mentor these young faculty, just as I was mentored as a new faculty member.”

How do you feel about your position now? “I tell others that I have the best job at the university – and I really believe it. My position allows me to focus on teaching and advising, areas for which I have a real passion and see as my mission. I have had strong support from both my department and College of Engineering, and the university recognized my efforts when I was named an Alumni Distinguished Undergraduate Professor in 2010, the highest teaching honor for an undergraduate instructor, and received the Faculty Advising Award in 2008, the highest

advising honor at the university. I received the ASEE Fahien Award in 2010 from the Chemical Engineering Division of ASEE.

The late Kay Yow, a women's basketball coach at North Carolina State University, said, 'The first part of your life is about learning, the second part is about earning, and the third part is about returning.' I worked hard to achieve the rank of Teaching Professor and said 'yes' to some commitments that I knew I had to in order to 'check off the required boxes' for that promotion. Now that I have achieved that level, in the next decade of my career I want to focus more on mentoring younger faculty and working with undergraduate students one-on-one. Once my daughter graduates from high school, I have also considered taking classes here at North Carolina State University and working toward a Master's in Counseling, a skill set that I use frequently when working with students and something that I would like to develop further."

What opportunities and limitations does your job have in contrast to a traditional faculty position? "My daughter is entering her senior year of high school, and I want to be able to be there for her and with her before she leaves for college. My job allows me the flexibility to do so. Seeking out funding opportunities and grants is not something that is a high priority for me; I don't see myself initiating large grants, although I enjoy contributing as a co-PI on others' efforts, and I have worked with great collaborators whom I met through ASEE. I have never felt devalued by my departmental colleagues or others at the university; our faculty and others in the College often express appreciation for my contributions and expertise in teaching and advising."

Faculty Member #2: The second faculty member is 48 years old and is an Associate Professor in the Department of Civil Engineering at Montana State University. She teaches in the Construction Engineering Technology Program in Civil Engineering. She graduated with a B.S. in Construction in 1995 and a M.S. in Construction Management in 1999 all while she was running a successful design-build commercial contracting firm in Phoenix, Arizona. She had 13 years of professional field experience before accepting an adjunct faculty position with Montana State University in January 2000. She was given tenure-track Assistant Professorship in 2004 as a Professional Practice Track candidate and tenured as an Associate Professor in 2010. She has been the Program Coordinator for the undergraduate and graduate programs in Construction with the Civil Engineering Department since 2005.

How has your position changed in the last ten years? "When I first arrived to the world of academics, I had to realize that the systems that governed academics were vastly different than the systems that a business owner uses to be successful. I also realized that what made me successful in the business world would make me just as successful in the academic world. I applied what I already knew to my academic work, and those traits have not failed me these last twelve years. Each year I saw my role expanding more into a leadership position. This included more involvement with student chapters and industry contacts as well as more travel to seminars and associations related to construction. By the third year of my academic career, I was the main contact for our department when it came to industry liaisons and assumed responsibility for the summer career internship program for my department. By year six, I was directly involved with the Associated Schools of Construction as Region 6 National Director for a 3-year term, and I currently sit on the Board of Governors for the American Institute of Construction. My teaching

load has remained the same during my decade plus in academia (five courses per academic year) as have my advising load and industry liaison relationships.”

How do you feel about your position now? “I can most certainly say this journey has been a ‘road less travelled’ indeed. I was the first professional practice track faculty member tenured by my university, so it was a ‘road less travelled’ for the promotion process as well. I have no research component to my academic role, but in addition to teaching, my second major focus has been my administrative duties as Program Coordinator and Internship Coordinator. My industry liaison role is critical to the success of our construction program. When I started twelve years ago, I did not think I would be tenured, but I did know that I would be in a leadership role in my program because I came to Montana State University with the determination to do so. So becoming tenured has proven to be a monumental accomplishment in my academic career.”

What opportunities and limitations does your job have in contrast to a traditional faculty position? “For 6 years of my 12 year career I was *non*-tenured, and I still would be if it were not for ABET stepping in during our departmental 2004 and asking why I was *not* on the tenure track. My role and scope have not changed; I am a professional practice tenure track faculty, not a research or instructional professor required to do research. The opportunities my position grants me are wonderful. My schedule is very flexible to accommodate my personal life, and I am able to continue pursuing the ‘latest and greatest’ in the field of construction through my interactions with industry and the conferences I attend. I don’t feel like I’ve missed much by leaving the construction field or not owning a business. I’ve won three Excellence in Awards for Teaching during my academic career. I don’t feel limited by my current position whatsoever. I feel these types of positions are needed in non-traditional academic subjects like construction engineering because the students learn so much more from a person who has actually worked in the field then they ever will from someone who has never been there. Construction is a hands-on experience, and I believe that you must have actual field experience to succeed in teaching an all-male (99%) classroom. I plan on serving at least fifteen more years in my current position.”

Faculty Member #3. The third faculty member is 43 years old and is a Professor in the Practice in the Bioengineering Department at Rice University. She graduated with a B.A. in Chemical Engineering and Biochemistry in 1990 and a Ph.D. in Chemical Engineering in 1995. She joined Shell Development Company in 1995 and worked at the Research and Development Center in the Environmental Division. In March of 1999, she joined the new Bioengineering Department at Rice University. She has developed the course materials for two core lecture courses and five laboratory courses in Bioengineering. She has published a textbook, *Bioengineering Fundamentals* (Prentice Hall), for one of the lecture courses she developed. She serves as Associate Chair for Undergraduate Affairs, coordinates advising and curricular issues, and leads the department in its initial ABET accreditation. She has been married for 15 years, and her husband is a chemical engineer who works for Shell in Houston. They have a 12 year-old daughter and a 7 year-old son.

How has your position changed in the last ten years? “My responsibilities in the department and visibility across campus have increased substantially during the last 10 years. As Associate Chair for Undergraduate Affairs in the Bioengineering Department, I manage undergraduate advising, curricular changes, and all ABET-related activities. I have also taken on

responsibilities in the School of Engineering by piloting freshman engineering design courses. I now sit on school-wide and university-wide committees. I have piloted some innovative teaching methods, such as problem-based learning, in the College of Engineering. I mentor young tenure-track and non-tenure-track faculty in the area of teaching and education. I was the PI on a NSF Course Curriculum and Laboratory Instruction (CCLI) grant. I served on the ASEE Board of Directors for a two year team as a PIC Chair. I still spend much of my time actually teaching and mentoring students; this part of my job has not changed.”

How do you feel about your position now? “ I still love my job. My job is well suited to my strengths and personality. I love working with the bright and highly motivated students at Rice University. Since our classes are fairly small (typically 30-50 students), I have been able to apply best practices in engineering education and design courses with student-centered learning methods. By teaching labs (typically 8-12 students) and using lots of small group work, I get to know many students and develop substantial relationships with them.

I am in a department that supports and appreciates my contributions as a teacher and administrator for the undergraduate program. National and local recognition for my efforts have reinforced the appreciation in concrete ways. In 2007, I won the ASEE Quinn Award for Excellence in Laboratory Instruction. In 2011, I won Rice University’s highest teaching award, the George Brown George R. Brown Prize for Excellence in Teaching.

The flexible nature of my job continues to be a big blessing. My daughter Miriam was born in 2000 and has Down syndrome. While her health has improved substantially in 10 years, I still have many scheduled appointments and some unexpected emergencies as well. For example, I took off the summer of 2009 when Miriam had a second open-heart surgery. My son Ben was born in 2005. While he has been a very healthy child, the flexibility of an academic position is still appreciated.”

What opportunities and limitations does your job have in contrast to a traditional faculty position? “The main appeal of my ‘nontraditional’ job is that I can spend my days (and some nights) doing things that I truly enjoy. I was never truly motivated to develop a technical research program. My current position is ‘customized’ for my interests and strengths.

I am still limited in some university-wide endeavors because my position is non-tenure-track. I am not allowed on some committees and have been removed from others. In one particularly egregious case, a colleague (male, full professor, from my department) replaced me on a committee to ‘increase the credibility’ of the committee report before it shared its finding with the university senate. However, in most of my day-to-day interactions, my contributions are recognized.”

Discussion

Though the backgrounds and life situations of these three faculty members are very different, there are some common themes in their experience. Ten years ago, these faculty members highlighted the following as common in their experience¹:

- *The desire to interact with undergraduate students and influence undergraduate education.*
- *The desire for additional job flexibility.*
- *The risk in being viewed as the “volunteer” for all departmental service.*
- *The trade-offs in pay, title, and respect.*
- *The value of industrial experience.*
- *The importance of maintaining contacts within the engineering community.*
- *The importance of being secure in the role.*

While these are still valid, additional themes have emerged with the benefit of a decade of experience:

- *The satisfaction of becoming a mentor to other faculty.* It is an ironic and bittersweet moment when you realize that you are no longer eligible for “new” or “young” faculty awards or grants. (You can only fall back on being “new” for so long!) However, it is satisfying to realize that you can reach out a helping hand to someone who is taking a similar path. Faculty member #1 recently formed a Teaching Professors Learning Community in the College of Engineering at her university to encourage and support other faculty in these roles. Faculty member #2 was the first professional practice track faculty member tenured by her university, although her role in the department did not change upon being tenured. Faculty member #3 was on the steering committee that hosted a 2-day workshop on innovations in science and engineering education at her university. Team teaching with other faculty, talking to prospective faculty candidates interviewing for similar positions, and giving advice on teaching and advising issues to departmental and university colleagues become another means of fulfilling the mission to educate.
- *The development of a long term role as a student-focused faculty member.* Every department can benefit from having (at least) one faculty member who is the “go-to” person for undergraduate academic matters. Both faculty and students benefit from that individual who is focused, in a day-to-day manner, on undergraduates. Especially in large departments, this individual touch is sometimes difficult to ensure. Faculty members # 1 and #3 report that their advising process and resources were highlighted during their recent ABET visits as a valuable asset for the department; in fact, having this type of person in the department can become a competitive advantage when it comes to recruiting and retaining students. Faculty member #2 is heavily involved in the student chapter of the professional society and coordinates summer internships for undergraduates. The continuity of having a long-time resource is valuable for alumni seeking job contacts and recommendations and for maintaining strong relationships with alumni. Often it is the teaching-focused faculty whom alumni remember most.
- *Confidence in teaching and advising.* Simply put, you get better with time – if you have time to focus on honing your skills. While the first few semesters teaching are focused on the mechanics and the content, teaching the same course over time – with time to focus on doing it well and enhancing the content – usually results in personal confidence and strong performance. If your position is a teaching-focused role, you have the freedom and flexibility (and responsibility) to focus on continual improvement in your teaching. All three faculty have been recognized with significant university teaching awards in the last ten years.

- *It's okay to be different.* The presence of someone non-traditional is an important resource for a department. For these three faculty, being “different” has resulted in many conversations with students and colleagues about how it is okay to have different interests, pursue a different job from your peers, etc. These faculty counsel many grad students about teaching-only jobs and have mentored several into those positions. They also help undergraduates be “brave” about stepping out of the traditional opportunities that other more traditional positions typically sought by graduating students. It is valuable for both undergraduates and graduate students to see someone who has made a different, yet clearly very fulfilling, job choice.

Conclusions

While a nontraditional faculty position in an engineering department is not for everyone, these positions can be very fulfilling and enriching for individuals whose interests and strengths align with the job responsibilities. It is important that the potential faculty member have a realistic view of the trade-offs involved, such as potentially lower pay, a title that may not include the word “professor”, and additional departmental and university service requirements. However, for those persons seeking a more flexible academic position without the additional hurdle of the tenure process, it can be a satisfying way to contribute to undergraduate education, share one’s industrial experience with students, and influence the direction of the department. As these three faculty have demonstrated, this type of position is sustainable and valuable to the department, and can be both fulfilling and rewarding to the individual. As nontraditional academics successfully establish themselves within engineering departments and become important contributors, universities will hopefully become more receptive to the idea of nontraditional professionals returning to teach and advise students, and engineering professionals will increasingly consider second careers in academia.

Bibliography

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