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Are We the Last Generation for Whom an Academic Career Will be Meaningful?*

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This paper discusses the issues that are being raised with respect to tenure and the increasing use of adjunct, or part-time, faculty. The issue seems clear; in the United States of America, the move to turn universities into businesses is making them behave the same way the business community works. But is this appropriate? In taking short-term positions, will the academy be rendered ineffective? Other issues include the prolonged use of post-doctoral fellows with few prospects for true tenure-based academic positions. The short-term nature of many university administrators is also discussed. Another issue is the increased demands made for tenure track decisions. Now, individuals must be not only outstanding researchers/scholars, but they must be outstanding teachers, ie nothing is being taken away, only new responsibilities are added. This in turn the stress levels for young faculty. What are the implications for the academy if these changes continue? Or, as the title suggests, are we the last generation for whom an academic career will be meaningful? But, rather than end on a negative note, as a colleague has stated, *perhaps we are the only generation for whom an academic career was meaningful*.

INTRODUCTION

In the United States of America, over the past 25 years or so, careers have been distinctly altered. Employers were once counted on to provide life-long career opportunities for their employees, regardless of the employee's educational background. For example, in the automotive industry, high school graduates could start on the assembly line and work their way up to supervisory (foreman) positions. All of the appropriate and necessary training was provided along the way.

A similar situation existed for engineers. Young engineers started as junior engineers working with groups of more senior engineers in nearly an apprenticeship role and advanced to senior engineer. Once they reached senior level they could continue to be in a technical position or move into technical management positions.

However, today, at the dawn of the 21st Century, the situation is entirely different. *In contrast to jobs, careers are in very short supply in America* [1]. More and more, employees find themselves as contract labourers.

Today, with the proper skills, jobs are plentiful. Without the proper skills, finding employment may be very difficult. *What used to be true only in declining industries – that skills suddenly become valueless – is now true everywhere* [1]. Even knowledge workers are devalued in today's business world. Employers only want employees with the right skills at the right time. There seems to be not enough time to train them to perform. Is this trend a recipe for disaster?

ACADEMY CAREERS

But what about the academy? For many years the academy has operated in a consistent manner with career ladders for its employees. The traditional approach has been the granting of tenure that provides academic freedom with a progression of

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academic ranks as exemplified by the titles assistant professor, associate professor and professor, as used in the USA and much of the rest of the world, or senior lecturer, reader, and professor as used in the United Kingdom and the parts of the world that use the British education model.

But today, tenure is under attack in the USA for mostly unjustifiable reasons. And even in the academy, a shift can be detected towards contract employees – so-called adjunct academic faculty members, individuals with other jobs who teach in a part-time capacity. Some new for-profit universities such as the University of Phoenix Online in Phoenix, Arizona, in the USA, are based on the adjunct faculty model while the only true full-time faculty are those who design the curricular contents of the courses taught by the adjunct faculty members.

In addition, young faculty members at traditional universities get almost no training in how to be a faculty member and little or no professional development opportunities in this fast changing world. These deficiencies, together with increased responsibility for teaching as well as research, make the challenges extreme in magnitude. This paper will endeavour to examine these issues one by one, beginning in career order.

PART-TIME AND ADJUNCT FACULTY

When a young PhD graduate begins to look for an academic position, a number of issues arise. The numbers of full-time positions have been declining since the 1970s. The result is that more and more, recent PhD graduates are forced to take positions as post-doctoral fellows.

Trends

In the sciences, because of the lack of tenure-based openings, many are forced to take post-doctoral positions for three to ten years before achieving a full-time tenure-based academic position, if they ever are successful at obtaining a full-time, tenure-based position. Why is this?

The major reason for this is that the number of full-time, tenure-based positions has been in constant decline since 1970, whereas the number of post-doctoral fellow positions doubled between 1975 and 1995 in the USA. A move towards part-time faculty, not subject to the tenure system, has long been underway. Consider, for example, that in 1970, 78% of instructional faculty were full-time. That figure has been declining steadily, to 66% in 1980, 64% in 1989, and to 59% in 1993. This has advanced so much that today, nearly one of two university positions is not a full-time tenure-based position. This is true for both public and private colleges and universities. For those contemplating a position in a two-year community college, the situation is even worse where less than one of three positions today is full-time.

These trends, if continued, may force a serious decline in the number of students pursuing a PhD degree as an entry into an academic career. In fact, in engineering, the past two years have produced declining numbers of graduating PhDs for the first time ever. Because nearly half of those entering doctoral degree programmes indicate that they are pursuing an academic career, the decline in academic positions may cause the decline in PhD students to even further decline, spiralling in, so to speak. The trend may be even further exacerbated by the declining numbers of engineering Bachelor's degree recipients this past decade.

The reason for the declining number of full-time positions is primarily due to the competition between the university administration's control of academe versus faculty control. Because the university's administration has been charged with the fiscal control of the university, their ability to handle changing situations has definitely been hampered by their inability to easily control the costs. For example, in a system that uses tenured, full-time faculty, departments may have high fixed costs that are primarily based on faculty salaries.

Declining enrolments in such programmes create administrative problems because the faculty costs are essentially fixed and extremely difficult to redirect. Taking funds from declining programmes cannot be used to increase funds for programmes with high growth. But, when non full-time faculty are used, their costs may be handled on a term-by-term basis. Part-time faculty members in declining programmes are not renewed. High growth programmes quickly hire more part-time faculty using funds available from the part-time faculty released from other programmes. Thus, fiscal controls are centralised within the administration at the cost of declining full-time faculty positions.

PROFESSIONAL DEVELOPMENT

Even when a young person obtains a full-time, tenured-based position, he/she is often unsure of the demands of such a position. In other words, the basic PhD degree, is a research degree, and does nothing to prepare a person for the teaching part of an academic career. It never has, in fact, but changes in the perception of an academic career are placing increased stress on the lack of teaching preparation.

A number of suggestions have been made to remedy this situation but a strong professional development programme for faculty starting even before their first faculty teaching position would certainly be an improvement.

Purdue University's Model

A number of proposals to provide instruction to prospective faculty have been suggested. Wankat has offered a course at Purdue University since the early 1990s for graduate students interested in an academic career [2]. His course is divided into three parts, namely:

- Part I: Methods and Procedures.
- Part II: The Student.
- Part III: Redesign of Engineering Education.

The first Part contains sections on What Works, Efficiency and Effectiveness, Taxonomy and Objectives, ABET, Problem Solving and Creativity, Obtaining an Academic Position, Teaching Methods, Graduate Mentoring, Testing, Grading and Cheating, and Evaluation of Teaching. Part II discusses how people learn and motivating students. Part III emphasises a Web Project, a case study on an ideal graduate programme, and concludes with a project on a near ideal undergraduate programme.

This course uses Wankat and Oreovicz's book and is well attended by both graduate students and recently hired young faculty members [3]. Perhaps this course could be made more widely available using satellite delivered television or Internet delivery to graduate students or new faculty at universities other than Purdue.

Other programmes have existed for a number of years that require prospective teaching assistants to take a course in teaching methods. This has been used more in science and mathematics than engineering because of the more widespread use of teaching assistants to teach lower division introductory courses.

The Pudlowski Model

A recent proposal by Prof. Z.J. Pudlowski of the UNESCO International Centre for Engineering Education (UICEE) suggests that those interested in becoming engineering faculty members might pursue an entire Master's degree in teaching and learning [4][5]. Such a programme would probably add at least one and one-half years of training for prospective faculty. The benefits would probably be excellent but the delay in entering the workforce, the increased cost to the student, and the lost income might be more than many prospective faculty members would be willing to bear. On the other hand, making such programmes available could fill a definite need letting those who have such interests make the decision.

Of course, students should not have to do a complete MSc degree programme; certification programmes could also be an option. Programmes such as that proposed by Pudlowski could also be delivered today using modern telecommunications technology such as satellite television or the Internet.

Life-Long Learning

However, additional education and training prior to starting an academic career, while necessary, is no longer sufficient. Universities must make career-long training and development opportunities available to all faculty members. Such a programme should include an entire life-long faculty development programme. Professional development must take on many flavours, and not just attending conferences, for example. New learning methods need to be communicated, technology updates, student learning styles, curriculum enhancements, etc, must all be included as part of the life-long learning process.

When college education was for the elite few, most of the problems of today associated with teaching and learning just did not exist, but with today's expectations that university is mandatory for career entry and nearly all high school graduates going on to college, the role of the university teacher is approaching that of the secondary teacher. This encompasses an extraordinary range of learning abilities, disabilities, etc, represented in each classroom group of students.

TEACHING RESPONSIBILITIES

Thirty years ago, it was clear that the road to tenure for a young faculty member was to concentrate on research: getting contracts and grants and publishing archival journal articles. Being an effective teacher was deemed good, but even those who were not particularly good in the classroom would get tenure based if their research accomplishments were strong. In some sense this is still true today. When the author was undergoing the tenure process more than 25 years ago, his mentor used to say: *It is not publish or perish, it is dollars or doom*, illustrating the importance of funded research as fundamental to the tenure process.

But times change, and today with the increased scrutiny of the educational system by legislators, members of controlling and governing boards, alumni,

parents, etc, changes are demanded. Yet most research university budgets are dependent on external funding, so young faculty are still rewarded by successfully competing for external funds. But now, increased teaching effectiveness is also demanded. The result is that the tenure period is becoming longer and increasingly stressful for young faculty. No longer are young faculty able to concentrate nearly exclusively on research/funding opportunities, but now sufficient time must be allocated for instructional processes so that student-based teaching evaluations are high enough to surpass departmental expectations.

Many universities complicate the tenure question by adding yet another leg to the stool: service. So, not only must a junior faculty member do funded research, be an accomplished teacher, but also serve the university and his/her profession. Fortunately, at this time, the service emphasis, while deemed important, tends to arise more often at promotion to full professor.

TENURE

The tenure system has increasingly come under attack in universities of the USA over the past 20 years. Many claim that the trigger for this was the elimination of mandatory retirement in the USA in 1994 that increased concerns about the productivity of older professors who had received tenure years before. But this is simply not true; the trend was in motion before this. It is interesting that the elimination of mandatory retirement, which was considered age discrimination, was replaced with another form of age discrimination that is perhaps even more repulsive. The repercussions of such changes challenge the foundation of academic freedom in the academy.

Why is tenure in the academy important? Certainly, it is not just for academic freedom. Tenure is most important in achieving a balance of authority within universities. The university administration is charged with fiscally operating the university, whereas the faculty is charged with operating the academic function, that is, deciding curricula, awarding degrees, choosing research subjects, etc. Most of these activities require a significant amount of time to develop and implement.

Differing Timeframes

Often university administrators and those who fund the university have timeframes that are much shorter than these faculty issues. Differences in timeframes create controversy and conflict among the various parties. Eliminating tenure would create an imbalance in the favour of administrators and much of the significance from long-term research projects, objectives and graduate education would be lost. After all, it is this freedom to work on longer-term issues and research questions that are the hallmark of a meaningful academic career.

To become short-term oriented within the university is a major loss: society has few options to high risk, long-term research that university researchers currently provide, certainly most businesses do not promote long-term research. The breakthroughs that provide societal development often take decades of study, often by very small groups of scholars.

The underlying purposes of academic freedom require that faculty have authority over who gets taught, what gets taught and how teaching and research are conducted. In other words, academic tenure constrains the university administrators over the academic aspects of the university enterprise. Tenure increases the ability of faculty to collectively shape institutional decisions through their actions in departments, colleges, or the institution as a whole.

Faculty members must become far more proactive in articulating the needs for tenure. The loss of tenure would seriously erode the role of research at the university in setting both a research agenda and curricular developments. By the very nature of a long-term agenda, many outside of academia do not think that faculty can do a good job setting the agenda. The research contributions tend to get lost once a product or process enters the marketplace.

One final factor in the management of today's universities is that in many cases a typical faculty member spends much more time at a particular university than today's administrators do. The short-term nature of administrative positions, many of which are not from the faculty ranks, tends to put a short-term emphasis on the university agenda.

SUMMARY

This paper has tried to illustrate a few of the problems that young faculty face in entering and remaining in an academic career. Today, the process seems to be fraught with problems that include prospective entrants being ill-prepared to enter the profession, an almost complete lack of professional development along the career path, a decreasing number of full-time faculty positions, and not least of which, a fully-fledged attack on tenure and academic freedom by universities. Taken all together, the academy in the USA is under siege in ways never seen or experienced before. In fact, a subtle change occurred recently in the USA; higher education is now almost always

referred to as *post-secondary education*. This seems to imply a devaluing of higher education.

Fortunately, the economy is good right now making the market for part-time faculty very difficult because much better jobs with higher pay are easily available. Also, State budgets have swelled due to increased tax revenue meaning that higher education is undergoing funding increases once again. But these are only temporary and as soon as the economy cools, the use of part-time instructors will once again increase as more and more graduates will have a difficult time finding full-time teaching positions.

Final Comments

Rather than end on a pessimistic note, the author was reminded by a colleague that perhaps we were the only generation for whom an academic career is meaningful and a wonderful opportunity. An amazing number of events all came together for us. For example, science and engineering were key elements of World War II and became very important to the developing society. The large number of returning soldiers and sailors to attend colleges and universities spurred unprecedented growth in higher education and opened doors for an entire new generation of university professors. Continued scientific and engineering development meant that governments would pour millions upon millions into financing continued scientific research. Advances in transportation meant that faculty could attend scientific meetings around the globe with speed and ease often collaborating with researchers from many different nations.

Truly, this combination of factors might just be a bubble in time with the pendulum now swinging back to an equilibrium position. Only time will tell.

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BIOGRAPHY

Dr Gearold R. Johnson is the Academic Vice-President of the National Technological University (NTU) in Fort Collins, Colorado. He holds a BS in aeronautical engineering, a MS in engineering, and a PhD in mechanical engineering from Purdue University. He joined the NTU in July, 1994. Before that he joined the faculty at Colorado State University (CSU) in 1971. In the ten years before his retirement from CSU in 1994, he held the George T. Abell Endowed Chair in Engineering, the University's first endowed chair.

After receiving his PhD, he was a NATO post-doctoral fellow at the von Karman Institute for Fluid Dynamics in Rhode-Saint-Genese, Belgium. He has served as a visiting professor at the University of Kent in Canterbury, England, the UK, and the California Institute of Technology. Dr Johnson also spent a year as a visiting researcher at Shape Data Ltd in Cambridge, England, the UK.

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