

Engineering/Engineering Technology Hiring Practices -Are You Throwing Away Talent?

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Abstract

A few short years ago, when a university or college advertised for a tenure track position, it would receive 200+ responses with many well-qualified applicants. Today a similarly advertised position may produce only 20 or less responses and many of them may not be qualified. The problem appears to be multifaceted and the schools with four-year programs appear to be having a more difficult time than schools with two-year programs.

The present day labor market is normally singled out as the culprit for the hiring problems but there are other contributing factors. Other areas that need to be examined are the Ivory Tower concepts, ABET requirements, rules of tenure, and philosophy of the older faculty/administration.

This paper will look at the roadblocks in the hiring process and consider what needs to happen to open the window of opportunity for hiring the non-traditional faculty members. It will also consider alternatives to the classical profile used in many recruiting campaigns. The need for the non-traditional faculty and the half-life of faculty is also explored.

There is a need to adjust hiring practices to include these highly qualified, non-traditional persons in our search and screen process.

Introduction

In a recent survey of universities and colleges, 55% of the bachelor programs indicated at least one funded faculty position unfilled and 13% have 2 or more unfilled positions. Sixteen percent of the schools with an associate program report 1 funded but unfilled position and 42% report having 2 or more unfilled.¹ This is a nationwide problem and it is becoming more and more difficult to employ qualified faculty.

The numbers of unfilled positions are, at least in part, due to the rising salaries in industry and the low salary increases for faculty. Another factor is that the half-life of an educator's technical knowledge is becoming shorter and shorter. The only way the educator can catch up with the technology is to return to industry or to bring in new faculty with current industrial knowledge. The attrition to industry over the last four years is 44% of the total faculty vacancies for 4-year programs and 22% for 2-year programs.¹

It is time that universities and colleges seriously look at these problems in addition to addressing some of the other causative effects that are preventing them from being fully staffed. They also need to consider roadblocks that they themselves have created. The following identifies some of the additional roadblocks and offers some suggestions for overcoming them.

Roadblocks

Positions are typically advertised in educationally oriented periodicals or technical journals. Placing advertisements in these used to bring a flood of resumes but no longer. An institution will be fortunate to receive 20 to 25 responses and most of these will not be qualified. This is the result of not soliciting the larger market.

Another roadblock is the "Ivory Tower" attitudes held by some controlling officials in the universities and colleges regarding the qualifications of the candidates. Seventy-four percent of the four-year Engineering Technology programs require a Master's degree in a technical field, such as Electrical or Mechanical Engineering. Twenty-six percent require a Ph.D. degree and the trend is for more schools to require the Ph.D.¹ This is an unrealistic requirement in programs that do not give an advanced degree. It is also questionable as to the need of this requirement for teaching in undergraduate programs.

ABET has, in the past, required that the majority of the faculty hold an advanced degree in a related field. ABET is in the process of re-evaluating their position and the general opinion is that the term "related" field will be modified to loosen the requirement.

Other roadblocks are the rules of tenure that have been put in place by the institution and the philosophical attitude of the older faculty/administration. The attitude seems to be that "we require these qualifications because that was the requirement when I hired on". In other words, "that's the way we have always done it" or "if it ain't broke don't fix it." What is not realized is that it is broken and it is time to fix it.

The pool of available, "qualified" candidates has shrunken due to a paradigm shift with today's graduates. Students in the past would continue, or return from industry, for an advanced degree in their chosen field or a closely related field as their first choice. Many of these same students have optioned for degrees in other fields such as an MBA. The choice of which advanced degree to obtain is made on the basis of furthering their career rather than advancing their knowledge in a particular field. Degrees such as the MBA are considered as the gateway to the executive ranks. These decisions by the graduates have reduced the available talent for the universities and colleges as long as we hold to the related field philosophy.

As technological change gains momentum, educators must be prepared to treat their careers as dynamic entities that need continuous upgrading. Ten years ago the half- life of a practicing mechanical engineer was 7.5 years, an electrical engineer was 5 years and a software engineer was 2.5 years.² For full-time faculty it is even shorter unless they are involved with intern programs. Today, considering the technological change in the last 10 years, these half-lives are undoubtedly shorter. Just as the practicing engineer must stop thinking of education as what they did in college many years ago, so must the engineering and technology educator stop thinking of what they did in industry many years ago. The educator must maintain currency with industry by either returning to industry, internship or by association with new faculty that brings, and shares, up-to-date experience.

What should we do?

The above roadblocks prevent the employment of many talented people. A person with a bachelor's degree in a technical field but who chooses to acquire an MBA rather than an MS in his technical field, with appropriate industrial expertise, can bring relevant knowledge, enthusiasm and a sense of "now" to the program. A professional with a bachelor degree in a technical field with no advanced degree, but working in the state-of-the-art program in industry, can also enhance a program. Some schools shun an advanced degree in chemistry or physics, although these people can bring a wealth of talent and knowledge to the program. Universities, colleges and accrediting agencies need to re-evaluate their position towards these non-traditional candidates.

"Those institutions that can step up to this process of change will thrive. Those that bury their head in the sand, that rigidly defend the status quo or - even worse - some idyllic vision of a past that never existed, are at very great risk. Those institutions that are micromanaged, either from within, by faculty politics or governing boards, or from without, by government of public opinion, stand little chance of flourishing during a time of great change."
By James Duderstadt in *Dancing with the Devil*

Studies have shown that faculty with industrial experience spend a greater percentage of their time on teaching. They have also shown that work experience positively affects faculty attitudes towards teaching and research.² Establishing a criteria for the employment of new faculty that places the emphasis on industrial experience rather than an advanced degree in a related field is a fundamental change in existing cultures. Schools are being asked to enrich the education of students. This can be done by increasing the number of faculty with relevant industrial experience.³

Employing these people will strengthen the ties between industry and academia, and improve a relationship that at times is lacking in trust and respect. In addition, a faculty with currency in industrial experience will provide a conduit for upgrading the entire faculty through sharing of experiences. These educators teaching professional courses will enrich students in their field.

Why, then, do the institutions only look for advanced degrees in a particular field and why is a PhD required to teach freshmen students. Opening the doors to the talented people with a desire to teach, with a wealth of experience and will bring currency to the program. They will come with a desire to upgrade your program to the present day industry and want to give back some of the blessings they received.

By ignoring these potential resources the institutions narrow their choices and deprive the students of the much-needed contact with the real world.

Where to find these potential employees

Most institutions confine their advertising to a small number of publications such as the ASEE Prism, the Chronicle of Higher Education and their society publication. These attract fellow educators and some industrial people but ignore the greater pool of talent. To get the broadest coverage, the schools need to look at other sources. Several alternate sources are listed below.

A few years back an advertisement in the Wall Street Journal Employment Weekly would result in as many as 4000 applicants. A similar advertisement in the local papers would bring in an excess of 450 applicants. Compare these numbers to the 200 or less responses that were being received by the schools in the same time frame and there is obviously a bigger market out there that is not being reached.

Professional conferences typically provide a “job board” where employment advertisements can be posted. This will expose the job to 3-4000 people depending on the size of the conference. The persons who attend these conferences are, in general, people at the forefront of their field and could potentially be an excellent addition to the faculty.

The placement office on campus keeps close track of the alumni and can be another resource. Many graduates, after 4 or 5 years working in the field are searching for ways to a locate closer to their ancestral home. Contacting them with a personal letter will often yield exceptional candidates.

Other considerations

Salaries are a major consideration in attracting candidates from industry. Most people are not looking to match their salary, but they are not willing to accept a major cut. Each institution needs to look at the salaries, compare those to the salaries in each individual field and what would be fair to the faculty in each individual discipline. Some schools try to level salaries for all disciplines, which results in the rejections from candidates that are in a high paying field and leave the vacancies unfillable.

Salary adjustment can also help retain the present faculty and reduce the loss to industry. Salary compression at the institutions is worse than in industry. Salary compression is the major

reason for people changing jobs or industries. When a “seasoned” professor finds that the new hire, with little or no experience, is being offered a salary that is \$1000-2000 higher than his current salary, he starts looking for ways of equalization. Changing institutions or returning to industry is their first choice.

Release time and sabbaticals can enhance the offered position if the policy is reasonably liberal. They will also help retain the present faculty and help upgrade the industrial experience of the faculty. Internships should also be encouraged for the entire faculty.

Conclusions

Universities and colleges are having a difficult time filling funded positions and attracting quality candidates. The institutions need to take a serious look at the roadblocks they have set up that prevent the employment of talented persons. Some roadblocks are external but many are created by the policies and attitudes of the schools themselves.

Limiting the scope of the search, archaic standards and restrictive tenure policies are some of the problems that the institutions can remove. Realizing that the available market has been limited by graduates selecting advanced programs based on career decisions rather than furthering their knowledge emphasizes the need to look at non-traditional candidates.

Expanding the scope of the search by advertising in non-traditional periodicals and using conferences and the placement offices will provide a wider selection of potential candidates. Examining salaries and avoiding salary compression can help retain the present faculty plus attract new talent. Liberalizing policies regarding release time, sabbaticals and internships will also help.

The universities and colleges leave much of the available talent on the table term after term because of the aforementioned obstacles set up. Faculties that can bring a wealth of knowledge, experience, a sense of currency and a new vitality to the programs are ignored. The time has come to set aside the past and consider the future of the programs and students.

In other words, how can we teach the future while living in the past?

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