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Industry Experience: Enhancing a Professor's Ability to Effectively Teach in Higher Education

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Abstract

Current trends in higher education emphasize exposing students to experiences outside the classroom to better understand the application of theory. However, little attention has been paid to the question of whether having a professor with industry experience affects a students' ability to effectively apply theories and little has been done to explore options which either expose faculty increase the industry experience of faculty.

Introduction

A number of accrediting bodies have been emphasizing engagement and impact as the goal for academic programs. For example, this is the driving principle among leading business programs (AACSB, 2016). These goals require faculty to go beyond classic teaching methods which rely heavily on theory and examples delivered in a traditional lecture format and move emphasis to connecting students with industry by using applied projects and assignments that focus on addressing real world problems. Many specialties walk a fine line and work to avoid being classified as trade schools. Because of this concern, may programs have developed "physics envy" and have focused their reward structure for faculty on theory development and academic publishing. With this focus on the esoteric, a number of practitioners have accused universities of losing touch with the needs of industry. Many half measures have been used to help address these issues such as the employment of adjuncts, invited guest lecturers, and inviting executives in residence to give an outside perspective, but such solutions are only tangential. The influence of the participants on the primary direction of any program is limited to the acceptance of the full time faculty members.

Balance between academic rigor and relevance to industry is a challenge (Clinebell & Clinebell, 2008). This is complicated by the fact that most faculties do not actively engage with industry and many have no relationship with their field beyond academic exposure. Even faculties with prior industry experience are often decades removed from those positions and the relevance of that experience diminishes quickly. There are accrediting bodies which require professors to possess industry experience. The 2010 Information System Curriculum Guidelines strongly suggest that faculty acquire practitioner experience, (Burns, 2012) in a number of other fields of applied discipline, instructors are required to possess industry experience. Medical academics must do a minimum amount of clinical practice to retain accreditation and get promoted (Moody & Buist 1999).

ABET accreditation criteria for university construction programs stipulate that they must include at least one faculty member who has had full-time experience and decision-making responsibilities in the construction industry. The American Council for Construction Education Document 103 reads, "Evaluation of faculty competence must recognize appropriate professional experience as being equally as important as formal educational background" (McCuen 2007). However, in other fields such as business, often the major with the greatest number of students on campus, none of the major accrediting bodies require industry experience for faculty. While business school education equips the students with the functional business knowledge by using pedagogy of lectures and case studies, it is the opportunities provided in practical implementation in the real world challenges where it leaves the students wanting (Glen, Suciu & Baughn 2014).

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Techniques have been developed that are designed to expose students to real world situations. Engaged Learning, Service Learning and to some degree the Flipped Classroom attempt to expose students to real world problems and encourage them to engage with the community to practice the techniques that they have learned in the classroom. However, the faculties leading these projects are limited by their understanding of the needs and expectations of industry. Research indicates that there are significant differences between practitioners and non-practitioners. (Burns, 2012) Looking to the field of engineering, according to a National Research Council study, university curricula, in general, do not reflect the modern design practices used in most of the leading companies. The reason behind this is that faculty teaching these courses are rarely aware of recent design techniques. (Nasab & Lorenz, 2003). Connections to industry are vital for a program to remain an industry leader.

Exploring Experiential and Service Learning

Efforts to improve higher education have focused on improving the learning process in education through the application of research from the new science of learning. Service Learning melds cognitive learning with service projects to engage and critically think about the techniques that are being used (Eyler and Giles, 1999). Relatedly, Kolb and Kolb (2005) found that experiential learning is of particular interest. The Association for Experiential Education (1994, p. 1) defines experiential education as a process through which a learner constructs knowledge, value, and skill from direct experience. The concept draws on the work of numerous 20th century scholars who gave experience the central role in their theories of human learning and development. Notables such asas John Dewey, Kurt Lewin, Jean Piaget, William James, Carl Jung, Paulo Freire, Carl Rogers and others developed a holistic model of the experiential learning process and a multilinear model of adult development (Kolb, 1984).

Experiential Learning is a holistic philosophy where carefully chosen experiences, supported by critical analysis and synthesis, are structured to require the learner to take initiative, make decisions, and be accountable for the results. This learning is done by posing questions, investigating, experimenting, being curious, solving problems, assuming responsibility, being creative, constructing meaning, and integrating previously developed knowledge (Itin, 1997). The professor is responsible for presenting opportunities for experiences, helping students to utilize these experiences, establishing the learning environment, placing boundaries on the learning objectives, sharing necessary information, and facilitating learning. The learner is challenged to move beyond what is known (Chapman, McPhee & Proudman, 1995; Itin 1997; Kolb, 1984).

Learning is a cognitive and social process of knowledge acquisition (Gemmell, Borland & Kolb, 2012). As such, experiential learning is well suited to conveying knowledge and helping students establish mastery. Holcomb, Holmes and Connelley (2009) demonstrate that students gain tacit knowledge through both experience and observing the actions and results of others. By exposing students to real world experiential learning projects and discussing their experiences with groups of other similarly engaged students, students will be exposed to both theoretical and applied education techniques (Lipinski, Lester & Nicholls, 2013). However, for experiential and service learning to be relevant, faculty must have knowledge of the latest trends, connections that yield appropriate projects, and an understanding of the expectations of industry.

Adjuncts and Executives in Residence

Adjuncts who are currently employed in their respective industry and executives in residence bring ties to their current employer to the institution. These ties bring the possibility of internships and class projects with the company (Praetzel, 1995). Many such instructors incorporate their own projects into the class and let students work on projects under their supervision, thus providing valuable industry exposure and experience (Clinebell & Clinebell 2008). Financially employing these part time instructors is attractive as their pay generally ranges between $1,000 and $4,000 per class (Shakeshaft, 2002).

Executives with strong industry ties are able to recruit leading guest speakers. Such individuals understand the key issues diagnosing strategic issues (Potter et al. 2010). Part time instructors who are in senior positions are able to recruit students for internships and employment opportunities. Also of importance are the ties that part time instructors can provide to faculty members. While normally only considered for their roles as instructors, part time adjuncts and executives in residence have the potential to advance the research agendas of the tenured and tenure track faculty members with whom they work. Practitioners have referred to academic research as "fuzzy, irrelevant and pretentious" (Gaddis, 2000). Working together, the opportunity exists for academics to hone in on issues that are seen as relevant to the practitioner community.

Also of note is the fact that practitioners have access to corporate data. Companies are often reluctant to make such information public, but working in concert; both sides have an incentive to work with the available data in a responsible manner (Clinebell & Clinebell, 2008).

Exposing Faculty Directly to Industry

While the rewards of academia are heavily skewed toward the creation of theory and publishing journal articles, programs could benefit greatly by providing faculty with opportunities to gain direct experience in industry. Few programs have formal programs in place to facilitate such interaction, but there are examples of successful university – industry partnerships.

As stated, there are academic accrediting bodies which require faculty members to possess industry experience. It is also important to note that outdated experience can be as irrelevant as no experience. According to the National University Continuing Education Association, even slower paced technical fields are reinventing themselves at least once a decade. What is the best way for faculty to monitor and adjust to these changes? By gaining some industrial/professional experience through an association with a professional office, for a summer or on a part-time basis (Davis, 2012). Consider engineering. The half-life of an engineer's technical skills, the time it takes for half of everything an engineer knows about his or her field to become obsolete - is very short. According to the National University Continuing Education Association, for mechanical engineers it is 7.5 years; for electrical engineers it is 5 years; for software engineers, a mere 2.5 years. (Smerdon, 1996)Career paths do not have to be linear. Many faculty change jobs between academia, industry, and government— sometimes changing sectors multiple times or working in multiple settings simultaneously. In the market context, economists often label this flow of knowledge from one firm to another "knowledge spillovers" (Jaffe, 1989; Griliches, 1992; Jaffe et al., 1993).

Nasab & Lorenz (2003) detail an interesting relationship between the engineering technology faculty at Middle Tennessee State University and local industry. A consortium of local companies has financially committed to provide financing for one adjunct faculty member each semester to relieve a full time faculty member. Each semester on a rotating basis, one faculty member leaves the university to do an internship with local industry. With the paid for adjunct, there is not financial strain on the university. The local companies benefit from the knowledge spillovers of having a faculty member working with them for an extended period. The university benefits as the professor's return with real time industry knowledge which allows the Engineering Technology department to fine tune the relevance of their curriculum.

Such interaction would yield a number of benefits for university programs. A more professionally involved faculty would improve the interaction between industry and academia, and improve a relationship that is at times lacking in trust and respect. (Auchey, Mills & Auchey, 1998). Long-term success depends on carefully defining the system in which classroom teaching effects other parts of faculty work, departmental and college operations, and external pressures (Fisher, Fairweather & Amey, 2002). One must be willing to overcome resistance to change (Walsh & Lipinski, 2008).

Recommendations to Universities

1) Encourage faculty to develop industry ties and spend time working with corporations. This can be facilitated in a number of ways that do not disrupt the university's expectations. Encourage faculty to work one day per week with industry. Encourage faculty to use summer as an extended period when relationship can be built. Encourage faculty to use sabbaticals to gain current industry experience.

2) Strongly consider a candidate's industry experience when hiring new faculty members. Be cognizant of the ties that they bring if they have industry experience. Devise a plan to leverage the network of new hires and encourage them to maintain and strengthen their ties.

3) Reward faculty for taking the initiative to build industry ties. While theory building and academic research will continue to be the primary activity of university faculty, recognize strong applied research. Make resources available to conduct research in tandem with corporate partners.

4) Cultivate an active partnership with part time faculty who possess current industry experience. Include then in meetings when curriculum is being discussed. As most adjuncts and executives in residence have job responsibilities, work to set meeting times when these individuals can participate.

5) Build partnerships with recent alums. Faculty have the opportunity to learn if their lessons were relevant to new graduates entering the field and have the opportunity to make adjustments based on this feedback. It also strengthens the faculty members' network and strengthens the university's ties to industry.

6) Develop an executive PhD program. As many masters' degrees such as the MBA have become a commodity, developing such a program would encourage practitioners in industry to continue their education and strengthen their ties to the university. As this relationship develops and individuals progress towards earning their doctorate, this creates a partnership where a university can develop future professors as practitioners either decide to change careers or retire. As PhD programs continue to produce fewer graduates, an executive PhD program would allow universities to home grow some future faculty members and by leveraging corporate tuition reimbursement, this could be done while earning revenue for the program.

Conclusion

Vehicles exist to open the classroom to industry experience. Experiential learning, service learning, and to some degree the flipped classroom all allow faculty to bring real world projects into the classroom. However, ties to industry and relevant industry experience are required to ensure that the projects are relevant and imparting valuable, timely knowledge to the students. Strengthening university-industry ties by giving faculty industry experience and absorbing the knowledge of practicing adjuncts and executives in residence is a win-win strategy that will have a multiplicative effect.

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