

Mid-Career Change: Benefits and challenges of leaving industry for academia

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Introduction

Typically, a career in academia begins immediately after graduate school or after retirement from a long career in industry. Transitioning from industry to academia at a mid-career point is often challenging because these faculty members have been on career trajectories that have not included developing an independent program of research or publishing papers in academic journals. However, as many colleges are expanding their Science, Technology, Engineering and Math (STEM) programs and offering more applied degrees in the engineering sciences there are new opportunities for recruiting faculty members with industry experience who can teach and train a new generation of engineers. This is particularly true for faculty appointments at teaching focused, rather than research-based institutions of higher learning.

Although details have not been published, informal surveys show that students prefer professors to have experience outside of academia (Lewis 2008). Several sources discuss advantages of industry experience for faculty, as many of the skills learned in professional experience can be directly transferable to a successful faculty career (Loendorf 2004; Loendorf 2006; Banik 2016). For example, it is recommended for new faculty to be flexible, try new things, maintain an upbeat, enthusiastic attitude, manage time well, select a mentor, and collaborate (Loendorf 2006, Banik 2016). These are skills often learned in “real world” settings, such as working for engineering consulting firms or industry. At the same time, many aspects of being a new faculty member have been identified as not being taught in graduate school or with industry experience. These include motivating students to learn, helping struggling students, planning and delivering courses effectively, starting a research program and getting it funded, writing rigorous and fair assignments and tests, dealing with classroom management problems, attracting and managing students, finding and working with collaborators, learning and integrating into campus culture, and balancing work life with family (Adams and Felder 2008; Banik 2016).

Work-life balance has been shown to be a consistent source of stress to new faculty, along with unclear expectations (Austin 2003). Banik (2016) asserts teaching practices, finding time for research, inadequate feedback and recognition, unrealistic expectations from supervisors, insufficient resources and lack of mentors are all challenges for the new faculty member, and common errors of new faculty include preparing too much material for class, not prioritizing time for writing, and isolating themselves.

This paper discusses how industry experience prior to beginning a tenure-track faculty position may affect faculty requirements such as teaching, research, and collaboration. Personal experience is shared from a first-year, tenure-track engineering faculty member joining academia after almost 20 years working in a combination of consulting, government, and manufacturing industries. This new faculty member’s experiences are discussed in relation to responses from faculty from various institutions on sources of stress, and where industry experience may provide advantages to a new faculty member. Student measures of the importance they place on new faculty members having industry experience, and ways that the department and other faculty

members helped with this transition, such as a reduced teaching load the first semester and informal mentoring, are discussed. This information could be useful to those still transitioning into an academic career, considering a change from industry to academia, and to administrators and search committee members evaluating new faculty hires.

Methods

Personal experience of a first generation college graduate with almost 20 years of professional engineering experience prior to joining academia full time is shared and compared to survey results of other faculty. Direct experiences of this faculty member, one of the authors, during their first semester on the tenure track at a teaching focused institution are summarized. Professional experience of the author is comprised of a combination of consulting, government, and manufacturing industries, while teaching experience consisted of responsibilities as a teaching assistant in graduate school for three (3) semesters, teaching one (1) semester as a part-time instructor, and teaching colleagues on various topics informally and formally.

Professors known to have some industry experience from a variety of higher learning institutions were surveyed. They were asked to rate various factors as being a source of stress when they were new faculty, and to identify ways their institution made the transition from industry to academia easier for them, such as Start-up Funds for Research, Reduced Teaching Load First Semester, and On-Site Child Care. Thirty-five (35) professors were asked to participate in the survey, with 22 total responses.

Similarly, students were asked to rate the importance they place on industry experience from their professors, and if they can typically tell how much industry experience a professor has. The surveys can be found in the Appendix. Fifty-five (55) engineering students were asked to participate in the survey, with forty-nine (49) responses. The 55 students are all from the same teaching-focused institution, and are 96% male.

Results

The author found over the first year that while transitioning from industry to academia requires overcoming several challenges including culture shock, change in standard of living, and needing to revisit fundamental technical principles, this mid-career change also has many benefits to the faculty member, the students, and the department. The job satisfaction that comes with teaching and having an independent research program is probably the number one benefit to the faculty member. In addition, the flexibility and supportive environment have made the transition worthwhile and possible.

It has also been found by the author that industry experience can be beneficial to the classroom, such as by enhancing the quality of lecture material with “real world” examples, stories, and projects. Industry contacts were called upon to serve as guest speakers, provide design projects, and provide information - and sometimes, free membership - to professional societies. Most of these activities came natural because of the author’s experience volunteering for such activities during their career in industry.

Collaboration with industry partners to begin a research program was also found to be made easier with industry experience, even though starting a new research program remains a major challenge. The author was able to obtain a small undergraduate research grant from the university their first semester, where they mentored a student in research while also providing them the opportunity to have a direct connection to an industry mentor and present at a conference. The student later stated that they thought this activity is what enabled them to receive a job offer over three (3) of their classmates.

The challenges associated with the transition, were found to be alleviated somewhat with new faculty orientation, informal mentoring, and commitment of one day/week with no classes. In addition, a reduced teaching load the first semester was found to be vital for transitioning to the intensity of teaching requirements while also being able to find time to begin a research program.

The income disparity compared to working in industry was the primary stress for the author, which also affected work-life balance. This disparity required the author’s spouse to find work and their child to enter day care, as well as an adjustment in standard of living. Improved salary or signing bonus of course would make the transition easier, and would most likely have resulted in a move to academia earlier, but also non-monetary methods to assist the new faculty with the move to the new area such as providing information to assist with spouse job search, childcare, and realtor services would have been very helpful.

The author’s experiences seem to coincide with those of the surveyed faculty. Of the 22 faculty responses received, 18 (83%) are male; 16 (73%) are at teaching-focused institutions; and 9 (41%) also work as a paid consultant outside of academia. Twelve (12) (55%) of the respondents have been in their current position for at least 10 years, and five (5) (23%) have been in their current position for less than three (3) years. All of the surveyed faculty have at least one (1) year of full-time industry experience, and 12 (55%) have worked in industry full-time for at least 10 years.

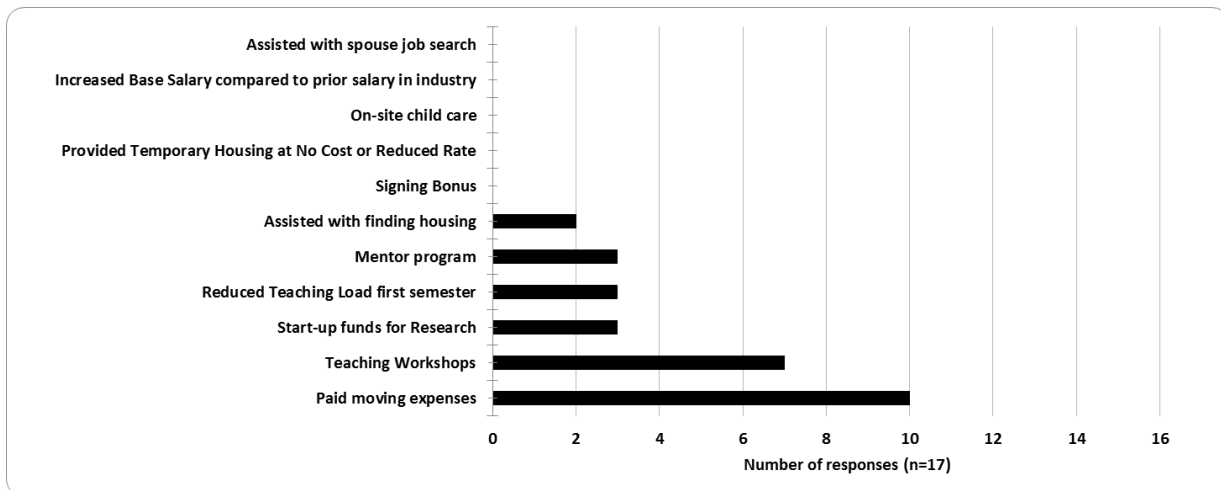


Figure 1: Methods institutions assisted new faculty

As illustrated in Figure 1, Paid Moving Expenses was reported by 10 of the 17 (60%) respondents to this question, to be provided by institutions, with all other methods to be reported by 7 (40%) or less of the 17 faculty. Five (5) of the 11 methods - Spouse Job Search Assistance, Increase Base Salary, On-site Child Care, Temporary Housing, and Signing Bonus - were not offered to any of the respondents to assist with their transition to academia. However, like the author's experience, efforts from the university or department such as new faculty orientation, informal mentoring, and commitment of one day/week with no classes so faculty can consult to compensate for the income disparity, were cited as ways the university did assist with the faculty member's transition from industry to academia.

Figure 2 illustrates that Prioritizing Time for Research was the greatest source of stress for new faculty. Only four (4) factors were identified by at least half of respondents to be a source of stress as a new faculty member: Prioritizing Time for Research, Work-Life Balance, Time Management, and Teaching Load. When asked what factors are a source of stress now (after some experience), these four factors remained in the top six (Figure 3). These all relate to the intense time commitment of the role, which appears to stay even with experience. Job-search related responsibilities such as Assisting Students with Job Search, Connecting Students with Industry Contacts, Helping Students Understand Employer Expectations, and Teaching Non-Technical Skills Important to Employers were not identified by any respondents as being a source of stress to a new faculty. Figure 4 shows that these responsibilities are included in those thought by most respondents to be made easier with industry experience.

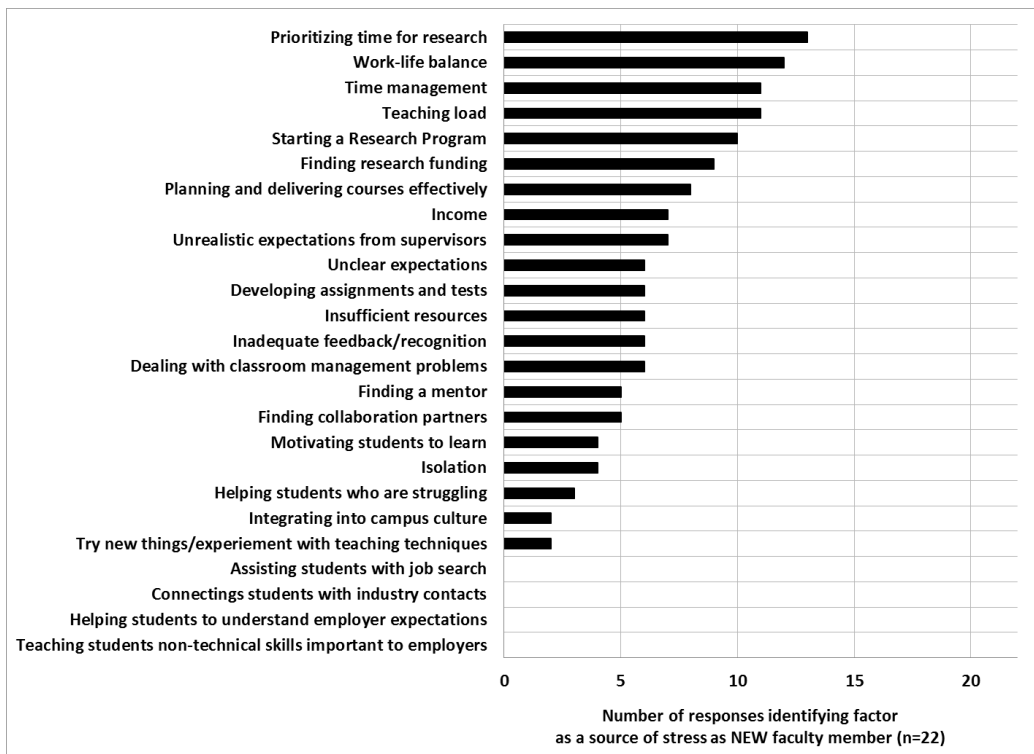


Figure 2: Sources of stress for new faculty

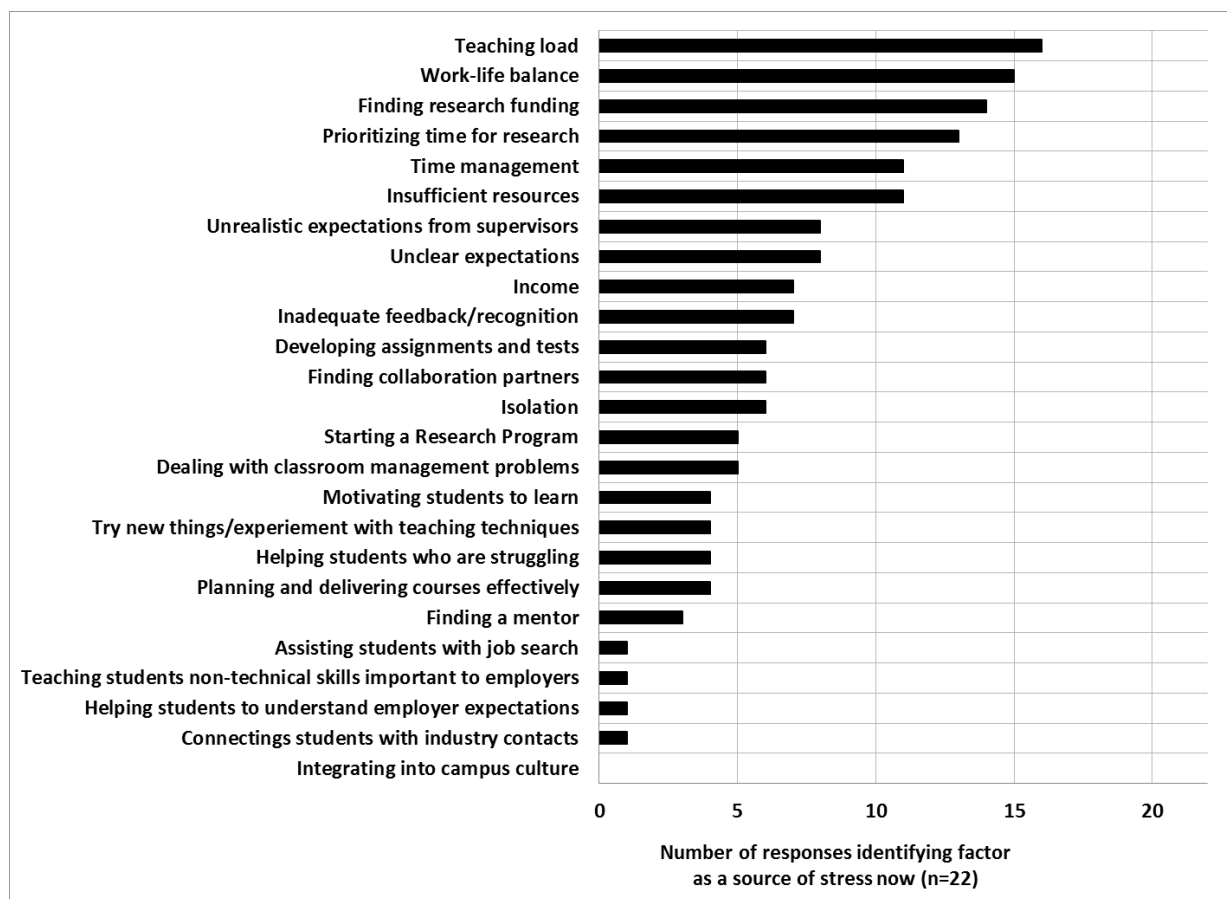


Figure 3: Sources of stress after some experience

Teaching related responsibilities (boxed in Figure 4) were reported to be made easier with industry experience, with 20 of 22 respondents reporting that Teaching Students Non-Technical Skills Important to Employers was made easier by their industry experience. These are also the factors identified the most often as a source of motivation to a new faculty member (Figure 5). Activities not specifically related to teaching or research such as Finding a Mentor and Isolation were reported the least likely to be made easier with industry experience and generally not related to industry experience. Income was identified as a factor made more difficult with industry experience by the highest percentage of respondents, but still with only 9 of the 22 (41%).

Forty-four (90%) of the 49 student respondents reported that industry experience of their professor was important to them, and 90% reported being able to tell which professors have industry experience.

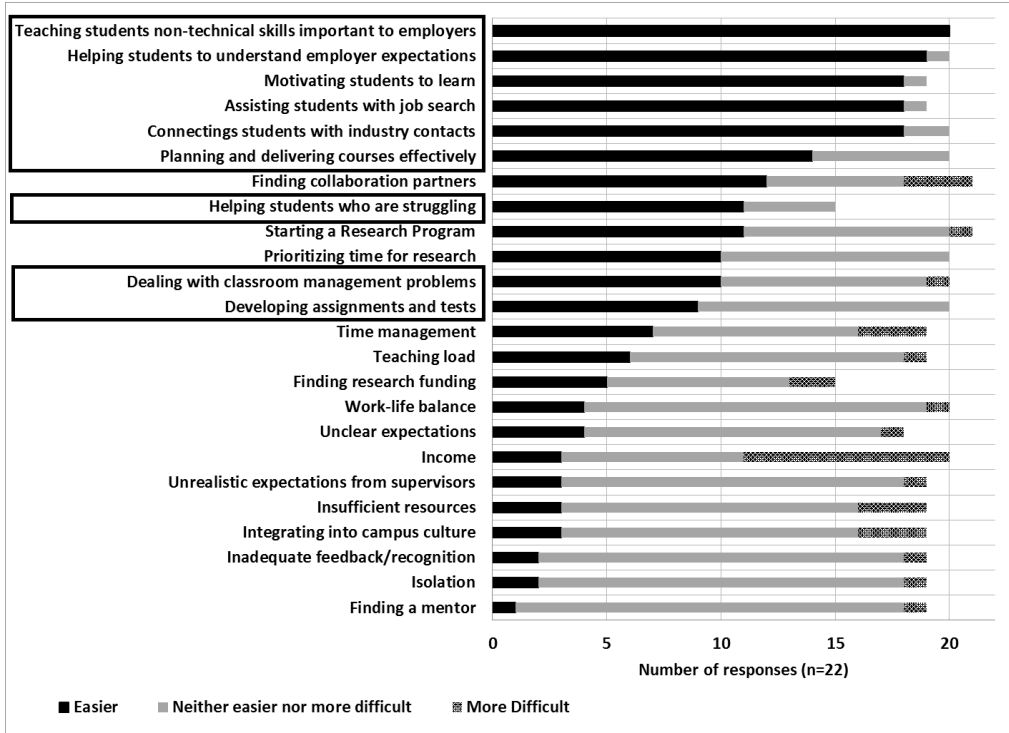


Figure 4: Factors made easier or more difficult with industry experience

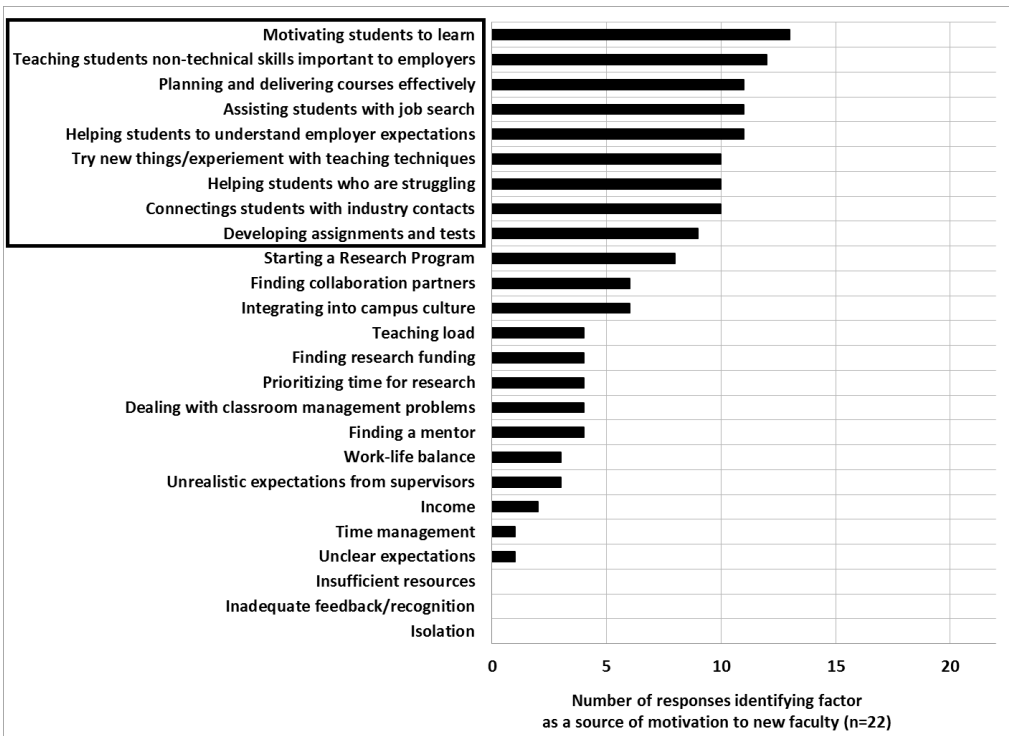


Figure 5: Sources of motivation for new faculty

Discussion

Entering academia after 20 years in industry certainly has challenges but also presents opportunities for more applied teaching and a strong student connection to industry contacts and professional skill requirements. The years typically required to become productive in research and effective in teaching can be particularly frustrating for a person who has been working for decades already. The new faculty member must remember to be patient with themselves. For the author, it helped tremendously to hear at new faculty orientation “during the first 18 months you will wonder why you made the change; after 18 months you will wonder why you didn’t make the change sooner.”

Lessons learned to help survive the first year and beyond include to ask for advice and help from colleagues within your institution and outside of it. Other faculty are very willing to share ideas and class material, and industry colleagues seem to enjoy taking time out of the office to connect with students. High school teachers are also a great source of ideas for energizing the classroom. As with any high intensity job, it is also important to build a strong support network at home and not be afraid to use it to help with personal and family obligations. Likewise, learning when to say “no” to requests at work and discovering colleagues with whom are good to collaborate and who are not takes time and experience. Be patient with yourself as you learn these things often times through trial and error. Stay in the office late one day per week, but go home on time the other days. Being available late in the day seems to resonate with students as well as allowing for some uninterrupted planning time, and being home in time for dinner other days helps to keep family life intact.

As a new faculty member, it is challenging to quickly connect with all of your students. Requiring students to visit your office hours the first week of class to share with you their expectations and concerns can help with this. This not only allows you to start to get to know them and their names, but also opens the door for them to reach out to you for help throughout the semester. Take time to ask your classes how they are doing before each lecture, and take advantage of one-on-one time with students during office hours to ask about their life while answering their homework questions. Also, do not hesitate to ask your students to volunteer for a no credit, no pay, research project - many students see the value in this and are just looking for the opportunity. Ask for informal feedback from students and colleagues throughout the semester. It is easy to sometimes become overconfident or more likely question everything you do with the highly independent culture of academia. A short discussion with a student on what is effective or could be improved in your teaching style for them can provide great clarification and ease your mind.

It is also useful to remember that your experience outside of academia is helping you to be an effective professor. Compared to research related responsibilities, teaching related responsibilities were reported to be made easier with industry experience, with 91% of respondents reporting that Teaching Students Non-Technical Skills Important to Employers was made easier by their industry experience. Transitioning to a career with less income and less resources than in industry is as expected the areas identified as being made more difficult with industry experience.

Very little, if any, formal methods appear to be used by colleges to assist new faculty with their transition. Paid moving expenses was the only incentive identified by more than half of faculty survey respondents as being offered by their institution. The top five source of stress identified for a new faculty member were all related to the high work load and time management, with Teaching Load and Work-Life Balance topping the list. These factors can be somewhat alleviated by providing flexibility to faculty schedules including one-day per week without teaching and a reduced teaching load the first semester. This can also enable consulting or providing time to begin a research program and is worthwhile and appreciated. Also, human resources departments for institutions of higher learning could relatively easily provide new hires information that could assist with their transition like realtor listings, childcare, and job search information for spouses, as is common in industry.

Although this initial research involves a small survey sample size, it confirms certain sources of stress identified in the literature such as work life balance, and that students appreciate a professor with some industry experience. Alternatively, some results disagree with other studies that assert that skills such as motivating students to learn, helping struggling students, planning and delivering courses effectively, and finding and working with collaborators are not learned or assisted with industry experience. Future work includes a more in depth survey of faculty with a large enough sample size to enable statistical analysis, and a more representative sample with regards to gender, institutional type, industry and academic experience, tenure or non-tenure stream, and job focus. Salary data will also be collected in further studies comparing salary when new faculty leave industry versus their starting salary in academia. Also, the German system of Universities of Applied Sciences where faculty are expected to have had industry experience before taking a university appointment will be compared against the faculty experiences in the United States.

Overall, results indicate that while challenges exist to the new faculty member and to the institution when a new faculty hire is coming from industry, the industry experience brings very tangible benefits as well. Industry experience of new faculty can be leveraged to build a stronger connection among students, classroom material, and professional skills requirements. A broad network often built with industry experience can assist the new faculty member in supporting students in their job search, bringing guest speakers into class, and building student design projects around real projects from industry partners. Teaching focused institutions in particular will reap the benefits of hiring faculty with industry experience, and opportunities exist to improve recruitment and orientation methods to assist new faculty with the transition.

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Appendix – Surveys

Faculty Survey

Gender	Male	Female
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Number of years in current position?	
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Institution	Teaching-focused	Research-focused
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Number of years teaching at college-level?	
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Have you worked in industry prior to your current academic position?	Yes	No
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If so, for how many years?	
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Are you a paid consultant with local engineering firms?	Yes	No
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How has the university may have made the transition easier for you? <ul style="list-style-type: none">· Increased Base Salary compared to prior salary in industry· Signing Bonus· Start-up funds for Research· Reduced Teaching Load first semester· On-site child care· Paid moving expenses· Provided Temporary Housing at No Cost or Reduced Rate· Assisted with finding housing (ie. provided literature on local area, realtor resources)· Assisted with spouse job search· Teaching Workshops· Mentor program· Other:
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Student survey

	very low degree	low degree	neither low nor high degree	high degree	very high degree
It is important to me that my professor has had a significant amount of industry experience.					
I can tell which professors have more industry experience than others.					