Change Requires Change!
Information Technology, Student Preparedness and Industry Collaboration:
Supporting the bridging process between education and training with innovative solutions.

Dr. Jill Anne O'Sullivan
Farmingdale State College, USA
School Of Business
Computer Systems Department

Abstract

This paper, Change Requires Change: will relate that bridging the gap between education: of what we teach and training: of what industry looks for in prepared skills for students, needs to be relevant to today's situations.

We need to re-evaluate traditional industry academic partnerships which have been relatively successful including; internships, work-study programs, curriculum advisory boards, guest lectures and capstone courses, to identify gaps and opportunities for what is needed to support our future.

Do we want to continue with the status-quo or enhance education? Should we be cognizant of emerging trends? What could be the implications on changing academic-industry partnerships? How can we improve? This paper proposes several new approaches to academics and industry practitioner's towards greater successful collaborations towards student preparation.

KEYWORDS: **Education, Training, Academia-Industry Collaboration, Trends, Future**

1. Introduction

IBM in their recent publication, e-Book, titled "A New Way to Work: Futurist Insights to 2025 and Beyond" conveys that, *the traditional workplace as we know it will no longer exist.* If that is the case should academia think that the current model of what we teach and how we teach will change or should change? As mentioned, in many papers researched, the relationship between academia and industry has been referred to as, at a glacial pace, from each other. Is there a crooked connection to what industry needs future employees to know and what is taught in the classroom? Should there be a straight line correlation? The deep gorge we are trying to fill is challenging to say the least and deepening.

In this e book, IBM relates that, *"the traditional workplace as we know it will no longer exists in the future. Fueled by the explosion of new technologies, the mass adoption of social channels, the ubiquity of mobile and connectivity, and the proliferation of devices are continuing to drive this massive transformation"*. [1] They pose the struggle with the idea of *"How will organizations position themselves to better collaborate, integrate and innovate quickly enough to survive at the speed of their customers?"* Well, academia needs to think and prepare similarly.

Interestingly, in the beginning of Geoff Colvin's book titled, "Humans are Underrated" he mentions that in reaching the future, *step one, is to think about it in a new way.* [2] Colvin's writes about, A Nightmare future yet provides insight into the fact that *technology is getting more powerful and that the skills that will prove most valuable are no longer the technical, classroom taught, left brain skills that economic advances have demanded from workers over the past 300 years.* He proclaims, *that those skills will remain vitally important, but more important isn't the same as valuable; they are becoming commoditized and thus a diminishing source of competitive advantage.* He decrees, *that the new high-value skills are instead part of our deepest nature, the*

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abilities that literally define us as humans: sensing the thoughts and feelings of others, working productively in groups, building relationships, solving problems together, expressing ourselves with greater power than logic can ever achieve. As he states, *these are fundamentally different types of skills.*

Academia attempts to align their focus on these skills in our course objectives, as in most classes this author teaches, that includes: students sensing the thoughts and feelings of others, working productively in groups, building relationships, solving problems critically together, expressing themselves yet are we connected completely with really filling the need of industry with prepared future employees?

At the end of chapter one Colvin, reiterates; *as technology becomes more capable, advancing inexorably by ever longer two year strides and acquiring abilities that are increasing complex and difficult, what will be the high-value human skills of tomorrow-the jobs that will pay well for us and our kids/students, the competencies that will distinguish winning companies, the traits of dominant nations?*

2. Review of Current State

Academic purists believe that "higher education has as one of its primary missions the acquisition and dissemination of knowledge as an end in itself [focusing] on acquiring knowledge, not necessarily on learning to use it." Further, they argue that higher-learning institutions should be able to advance the thought-space without the pressures of commerce and capitalism (Etzkowitz, Webste r and Healey, 1998). [3]

Conversely, their opponents who believe that it takes a village to train a designer (Bosley, 1995) and who see the value of academic enterprise, warn that the Ivory Tower is no longer an optimal or sustainable model for education (Etzkowitz et al.). In their view, "the value of knowledge and research is related directly to the market value of the products it produces" (Bosley). [3]

Sutliff (2000), in an article about Technical Communication pedagogy, found a nice middle ground when she acknowledged, [3] the best teaching and learning incorporates both theory and practice through projects that yoke the two.

Realizing that part of their job is to ready students for the workforce, the best professors will tie theory to practical skills and strategies that can be applied on the job." Within the broader design community, "the value of industrial collaboration in an applied subject has long been noted . . ." (Evans and Spruce, 2005). [3]

Traditional industry-academic initiatives can easily be found, including corporate internships, work-study programs, curriculum advisory boards, guest lectures and capstone courses. Also, many professors split their time between their classroom duties and their professional practices, consulting companies in order to stay relevant. [3]

As Figure 1 depicts, from the prior study referenced, the industry's overall level of engagement with academia. This identifies opportunities for improvement (i.e. anywhere you see an open or half-filled circle) within the status quo. But, is the current model sufficient? Will filling in the blank circles be enough to encourage change or to prepare for students future careers? [3]

Academia-Industry Collaboration	Corporations	Studios / Firms	Visionaries
classroom and curricula activities	●	●	◑
student and faculty on-site opportunities	●	●	○
short-term intensive design workshops	◑	◑	◑
design competitions	◑	○	○
employment opportunities	●	●	●
corporate-sponsored research projects	●	○	○
professional conferences and community organizations	●	●	●
presenting and publishing new methods and research	●	●	●
grants and philanthropic donations	◑	○	○
advisory boards	●	●	
liaison offices	●	○	○
[● = frequently, ◑ = sometimes, ○ = rarely]			

Figure 1: Industry participation in collaboration initiatives (compiled from various sources)

3. A generation of academic research and business practice

Michael Porter's Five Forces embrace the five forces that determine the long-run profitability of any industry and shaped a generation of academic research and business practice. [4] Have things changed? Should there be a focus on barriers

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between academia and industry since it is real, alive and disturbing. Should we address the many barriers to collaboration towards a mutual objective inside academia and industry departments, disciplines due to power, ego and ignorance, oh yes, we have to. We say, silos are what prompted separation in the past yet we still do not successfully collaborate across departments, or disciplines whether in academia or industry to the detriment of our collective need for change.

Opportunities for improvement, however, still remain.

4. Challenges

IBM in the aforementioned, e-Book, titled "*A New Way to Work: Futurist Insights to 2025 and Beyond*" claims that ideas emerged about how we want to craft our future amidst fast -moving technology, social connection, and greater digital integration into our already busy lives. "*If you think about the future of work, it's easy to get lost in the technology," says Amy Tennison, Social Media Strategist at IBM, "What was really embraced was that social, cloud, mobile, and personalized analytics are going to continue to grow. They'll be more of it, but it will also be naturally engrained into our daily lives. At the end of the day, it's still about people. It's about having them leverage their expertise and collaborate across the organization.*

We are at a pivotal point now in history, to forge forward and make profound changes in collaboration between and inside of academia and industry to better prepare our students with what they need to compete nationally/globally, to survive, to make a decent wage, to contribute to organizations need and to be productive leaders of tomorrow. We need the courage to change.

Some of the challenges that exist are to seek creative synergies, stay connected to industry, modify academic rewards structures to encourage collaboration, offer more of the work opportunities that students and professors seek

and influence other academic departments to collaborate.

5. Summary

By considering the benefits and gaps of existing academia-industry partnerships and through examination of trends that will inevitably shape the future, new models for collaboration should be developed.

No other time in history has there been a greater need for the best preparation of our students to directly meet the demand for local, national and international companies. We play such an important role in preparing the next generation with the skill sets that make a difference in their careers, future companies and national preparedness.

The opportunities for business and practice success are as abundant as they are complex" (Cramer, 2006).

This is a call-to-action for academia and industry to embrace these complexities as well as the future opportunities. Together we will need to explore more strategic partnerships.

Through extensive collaboration, educators and practitioners can enhance the educational experience, quicken the knowledge transfer process, take advantage of the, technical, social, environmental and economic opportunities that lie ahead. [5]

6. Bring the real world into the classroom or take the classroom into the real world.

This author, has been trying to meet this challenge and make suggestions based on her experience in academia, as a professor, in industry as a consultant, with more than 25 years of Operation and IT experience in military, commercial and government organizations.

Bringing industry tools and industry SME's into the classroom, having industry assist with curriculum development in using their real world tools, bringing student out into the organizations with tours, collaborative projects, internships, job

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shadowing and fulltime employment helps meet industry demand for prepared students. [6]

It appears as if it is time to now break down the walls between departments, remove industry resistance and eliminate overall political distractions.

7. Conclusion

It is now in our best interest to forgo holding so tightly onto what we think works, which has not been as efficient as necessary. If a company like IBM proclaims as they did in the aforementioned e-book that *"the traditional workplace as we know it will no longer exists in the future. Fueled by the explosion of new technologies, the mass adoption of social channels, the ubiquity of mobile and connectivity, and the proliferation of devices are continuing to drive this massive transformation".* [7, 8]

We need to be flexible enough to come together and work as a united force to meet the future.

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