

## Final Paper: *Philosophy and Organization of Workforce Education*

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In this paper I will seek to explain the level of “skills shortage” in the U.S. I will also discuss the opposing views of the “STEM” (Science, Technology, Engineering, Math) problem. After that, I’ll describe how workforce education for financial corporations will be affected by the impact of globalization, technology, and changing demographics. Lastly, I’ll offer my new insights on the pre-assessment question for the course.

### **The U.S. Skills Shortage**

With the coming elections, the perceived skills shortage in the U.S. has been getting a lot of attention lately. In my view, the idea of a pervasive skill shortage across the board is unnecessarily imprecise. It’s like saying the U.S. has a “water shortage.” Some areas of the country may indeed be experiencing drought, while others are simultaneously suffering massive flooding.

According to the Bureau of Labor Statistics, in absolute terms, over the period from 1994 to 2004, “The number of bachelor’s degrees awarded in STEM subjects has been

increasing in the past few years after several years of slight decline, according to the U.S. Department of Education.” (Terrell, 2007). Computer sciences were the notable exception, rising sharply during the period from 1998-2003. This seemingly refutes the reasoning that there’s a scarcity of skills in the U.S., provided the number of workers needed in the economy remained stable during that period. The need for highly skilled workers isn’t stable though—it’s growing rapidly. For the 2004-2014 period, the Bureau of Labor Statistics predicts and 22% overall rise in demand for STEM workers. Unfortunately, the gap between the required number of skilled workers and the number available remains difficult to pin down.

On the public school front, districts are suffering from the damage wrought by the misguided “No Child Left Behind” (NCLB) legislation. The over-reliance on standardized testing and unattainable goals left us with a legacy of “failing” schools and a lively public debate about who is to blame. Meanwhile, a student population that is, in many cases, ill prepared to face the future suffers the consequences (Rothstein, 2007).

Whatever problems exist, it also appears they aren’t distributed proportionally. For example, “Schools with a high concentration of Hispanics tend to have a lower quality of education, poor bilingual education programs, high dropout rates, and woefully inadequate curricula” (Gasbarra & Johnson, 2008). Kids who face additional obstacles such as language barriers and poverty may struggle to do well in school irrespective of the quality of the teaching staff or curriculum.

Returning to the “Skills Shortage” question, the evidence suggests to me that we have both areas where progress is being made and others where entrenched problems are going to cause gaps in key skills for students seeking higher education or to enter

the workforce. Fortunately, I believe that our labor force is, to a great degree, self-correcting. Skill gaps create the need and desire for workers to obtain additional training and education, and that need drives opportunities for educational institutions. Community colleges and workforce education providers are eager to assist people in obtaining the skills required to be successful.

### **The STEM Problem**

The acronym STEM stands for **S**cience **T**echnology **E**ngineering and **M**ath. The question of whether the United States is producing enough people with these technical skills is a matter of great debate. Prominent technical employers argue that “The evidence is overwhelming that there is currently a serious shortage in the U.S. of IT professionals, one that is projected to become even more severe over the next several years” (Masters & Ruthizer, 2002). This is often cited as a reason for U.S. companies to hire foreign-national professionals or for offshoring technical work.

It’s difficult to ascertain whether employers are being honest about there being a shortage of technically skilled workers in the U.S. It may be that they’re being overly selective in their hiring practices, and failing to assist workers in keeping their skills up to date. Another theory is that employers are using a mythical “shortage” as an excuse to hire cheaper foreign labor as part of a strategy to depress overall wages for technical work.

In my view those arguments are suspect for two reasons. The first is that the labor market forces at work support the idea of a shortage of STEM workers. According to

the Bureau of Labor Statistics, STEM skills are garner higher wages than other jobs on average (Terrell, 2007). The wages aren't just higher, but significantly so.

As a group, STEM workers earned about 70 percent more than the national average in 2005, according to BLS. Every major group of STEM occupations enjoys overall median earnings that are above the national average. (See chart 2.) Higher than average earnings are often an indicator of strong demand for workers (Terrell, 2007).

When viewed from a market standpoint, this pay disparity indicates to me there may indeed be fewer workers available with the requisite knowledge and skills required. If demand exceeds supply, the price (in this case salary) tends to be increased. If there were a surplus of skilled workers, then the market price for their labor would be reduced accordingly, and employers would hire at will to meet their needs.

My second reason for thinking employers are being truthful is that there's really no motive for them to be otherwise. If they wish to purchase cheaper foreign labor they needn't hide that fact. One need only look at the manufacturing sector to see how companies have forthrightly and unabashedly moved production facilities to countries where labor costs are lower than in the U.S. It's no secret that companies may seek to reduce their costs in this fashion. That being the case, companies

wouldn't bother to lobby Congress to encourage more technical education here in America if they could easily meet their needs at a lower cost elsewhere.

This presents a difficult problem. If we are experiencing the problem now, the cavalry may not be coming anytime soon. Suppose we seek to fix the problem by producing more STEM college graduates. Assuming we are able to encourage that; the fix won't arrive years until in the future since it takes time for people to get through college. Of course, I'm assuming there isn't a large influx of STEM students already in the pipeline (for the record, I don't think there is). This indicates to me that the problem is likely to persist well into the next decade.

### **The Impact of Globalization, Technology, and Demographics**

The impacts of globalization, technology, and demographics at my company are subjects that are being studied carefully and have been recognized as pivotal to our future success. Many thoughtful and detailed books have been written on this trio of topics, so it would be folly for me to attempt to analyze the entire scope and breadth of just how these phenomena are shaping the corporate financial sector. Instead I'll endeavor to highlight what I think will be the most significant changes facing us in the next ten years.

Every prediction I've seen leads me to believe globalization and technology will expand the effective labor market to include the English-

speaking parts of the world with decent access to the internet. Financial corporations are in the midst of realizing that the need to have extensive capital tied up in buildings, desks, and physical infrastructure (with all its attendant costs) is becoming increasingly unnecessary. Programs that allow people to work from home, or while traveling, are growing in number and have proven to be both productive and cost-effective.

Once corporations discover employees can work from home, they'll quickly realize that "home" can be almost anywhere with telephone and internet access. This will prompt employers to select knowledge workers at the most competitive wage. They will no longer be tied to their local labor force, or even the national labor force. "It is increasingly apparent that global wage competition and technological innovations will continue to influence U.S. companies' cost-saving measures and other competitive strategies" (Feller, R. & Wichard, J. (2005).

On the demographic front, the challenge is far greater than we imagined. The changing demographics resulting from the mass departure of the "Baby Boomer" generation and younger Gen X, Y, Z, ascendance is just the tip of the iceberg. A distributed remote workforce made up of people in different states, countries, cultures, and time zones will be much more complex than the mere generational differences we were anticipating.

I think another major challenge introduced by technology that's beginning to overtake us is data overload. I distinguish data from "information" in that I believe

information is data that has been organized into some useful form. We're awash in business data that lacks coherence or relevance. I encourage people to look for the story in the data we have. Here are some general types of stories that may be found through analysis:

- Why is there so much of this and so little of that?
- In what way are these two things related?
- Why is this trending upward/downward?
- How does this bit of data compare to the historical average? To our competitors? To our goals?
- Why has this changed all of a sudden?
- Is there a pattern here?

Aside from the deluge of numeric data, people are struggling under a burden of thousands of e-mails, websites, professional articles, blogs, podcasts, current books, and research reports. It has become difficult for people to prioritize what's most important to read in the sea of stimuli competing for market share of their attention. Furthermore, I no longer feel that I can take at face value all the many things I find on the internet. Source credibility is a real question in a world where almost anyone can set up a professional looking website. The printed word used to be an indicator of quality—if someone took the trouble and expense to print something, usually it meant that at least some thought had gone into it. These days, there's an increasing amount of inaccurate, biased, or incomplete information flying around.

I believe that services and software which can distill information and consolidate those items that are most timely, credible, and relevant will emerge to assist people in making sense of it all. “Companies will need to learn how to leverage this new knowledge universe—or risk drowning in a flood of too much information” (Davis, 2006). I would love some software that could sift my “in box” and sort it based on what needs my attention most urgently. The current tools to do this are insufficient to the task.

For example, if a computer could understand when you were busy (via a camera, microphone or keypad monitor) it could rank e-mails in order of importance and then deliver them at the most appropriate moments. Information could also become more glanceable in the same way that aircraft instruments are laid out (Watson, 2007).

Among the hundred e-mails I get in a day, is there one from my boss requiring immediate action? Is there an emergency message from a family member? Maybe an important piece of information I desperately need? Currently, the only way for me to tell is basically to sort each message myself. I have even heard of people declaring “e-mail bankruptcy.” When the message accumulation gets too great, they just delete everything and start over. Not an ideal solution, but it does illustrate how the problem is becoming untenable for some of us.

## New Insights

One of the items I originally stated on my pre-assessment I would most like to learn about was *what are the current best practices in training that I can apply in our training department? How can I measure their success?*

The link you sent me about Bersin and Associates "The Training Measurement Book" was invaluable. Not only did I buy a copy for myself. I also purchased copies for my vice president and her management team. We've made it a centerpiece of our goal this year to enhance our training measurements and leverage information to assist ourselves internally in the department and to help share our story with our "customers" within the organization.

The chapter on the pros and cons of using ROI (Return on Investment) was particularly beneficial. Reading it helped us understand some of the problems we've had in developing convincing measures that speak to "the bottom line." Moreover, we now know why ROI figures may not be as valuable as other training analytics that deliver actionable information.

The readings and online discussions helped me to pinpoint emerging trends that will help us plan and set strategic goals which are more likely to create value in the organization. As I mentioned in class, the *Career Architect Development Planner* has already begun to occupy a favored spot on my desk. I've used it recently in creating development plans, competency maps, job descriptions, and performance reviews.

On a personal note, I cannot recall a class I've taken in the graduate program or as an undergraduate that was as rich in visionary resources and encouragement as yours. My summer reading list is a lot longer, and many items are leading me to still further valuable resources. What a tremendous gift that is—I thank you. If there's ever anything I can do for you, please know that I am at your service.

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Throughout the course, using material from the readings and the [601 eLibrary](#), develop a 4-6 page paper using citations which answers these four topics:

1. Documents the level of the "Skills Shortage" in the U.S.
2. Documents the "opposing positions" on the "STEM Problem" in the U.S.
3. Describes how workforce education in your present system (where you are employed) is/will be affected by the impact of globalization, technology and changing demographics.
4. Offers some new insights to your chosen question from the pre-assessment.