

# What skills must university students learn?

*An academic curriculum gets most of the way there, but a piece is missing.*

*by John Richter*

## “Not our problem.”

There is much public discussion, and frankly hype, concerning a “skills gap” in American higher education. The genesis of this problem, whether perceived or actual, is the reconciliation of two oft-reported contentions: *academically* qualified graduates are unable to find jobs while at the same time employers complain that they cannot fill job openings appropriate for graduating students. Taking that statement on its face leads to the simple conclusion - institutions of higher education do not adequately teach the skills that employers require.

And at some level, there is validity in the analysis; there is a problem, whether the problem is a new one or not, or whether the transition from school to the job market could simply be made smoother. Institutions of higher education, employers, and students all clamor for improvements in the status quo. In short, graduating students could be better prepared for the workforce.

Part of the challenge in moving from discussion to action is lack of consensus. Educators and employers disagree about the responsibility academic institutions must assume for the ‘problem’ and hence the role, if any, they should play as part of the solution. Employers routinely indict the educational sector for failing to provide learning that is aligned with job requirements. However, this criticism is often rebuffed by educators, who generally respond defensively:

*. . . there is another major pressure coming into the universities . . . that students, when they leave, must be able to walk right into some job without any further “training.” This sounds so reasonable that what gets lost is that universities are not in the business of “training.” Their business is “educating.”*

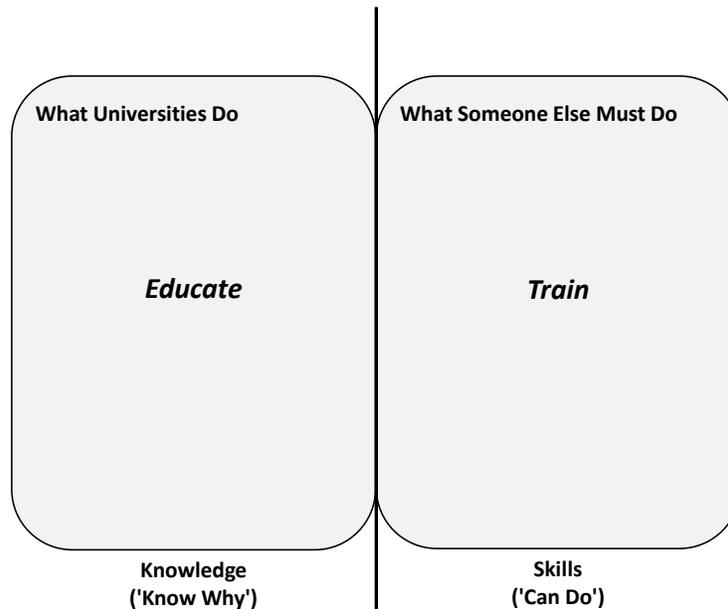
*The difference? It's the difference between know how and know why. It's the difference between, say, being trained as a pilot to fly a plane and being educated as an aeronautical engineer and knowing why the plane flies, and then being able to improve its design so that it will fly better.*

*Source: “A few thoughts on the difference between education and training”  
Robert H. Essenhigh, The Ohio State University*

This argument can be recast as the distinction between “knowledge” (know why) and “skills” (can do).<sup>1</sup> It makes the clear and simple delineation of responsibilities indicated in **Figure 1**.

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<sup>1</sup> I have taken some license in re-casting Essenhigh's ‘know how’ to ‘can do’, a more active sense of performing work, e.g. flying the plane re-worded from “knowing how to fly a plane” to “can fly a plane”.



**Figure 1**

This division of responsibilities is powerful in its simplicity. However, Essenhigh uses a straw-man argument to support his case. It is easy to agree that universities should not be coerced into becoming airline flight schools. However, are these *job-specific* skills what employers are seeking from education, and complaining about universities failing to provide, in the “skills gap” debate? Would Essenhigh’s argument be as compelling if he argued that universities have no role in teaching students how to write (as opposed to how to fly)?

## Academic Skills vs. Professional Tradecraft

To differentiate those skills appropriate to a university education from those that aren’t, it is useful to step back and ask the simple question, “What is education for?” One of the more well-considered positions on the role of education was put forth by Dana Gioia in his essay, “Pleasure, Beauty, and Wonder: The Role of the Arts in Liberal Education”:

*Today there are two closely related visions of American education in practice. One aims to produce children who pass standardized testing at each level. The other is one that produces entry-level workers for a consumer society. . . . Let me offer an alternative vision. The purpose of education in the United States should be to create productive citizens for a free society (my emphasis)*

Gioia’s definition presents us with two different aims of education: citizenship (preparation for life) and productivity (preparation for a job). We can use this distinction to split the elements of learning associated with “knowledge” and “skills” on a second, work-life axis. This creates the four (4) quadrants summarized in **Figure 2**.

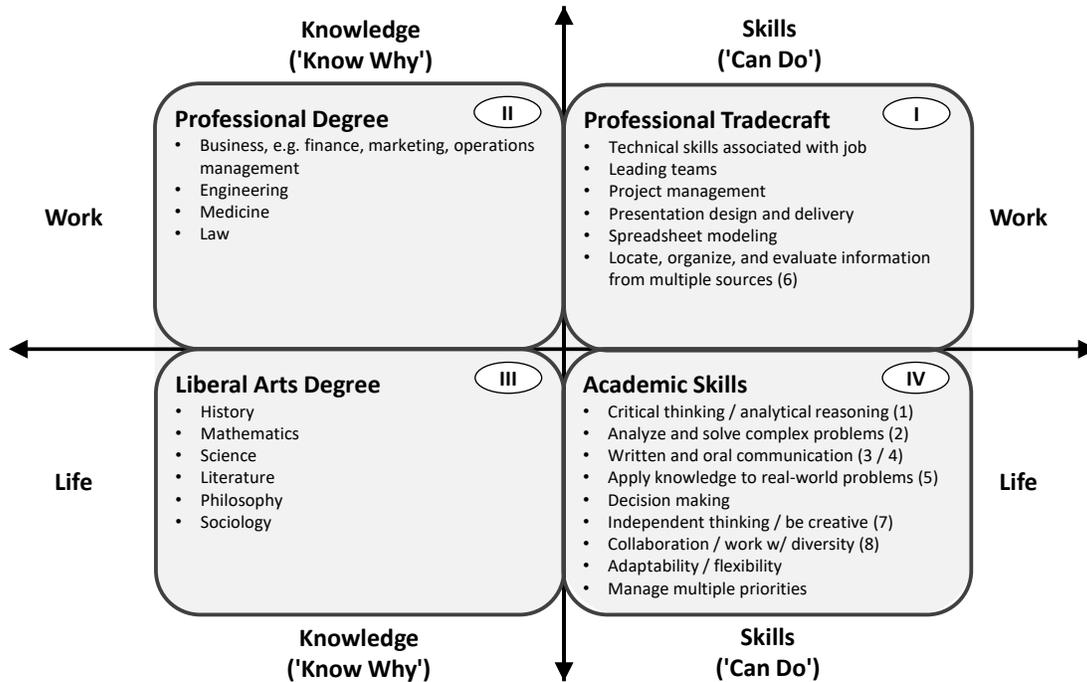


Figure 2

The additional delineation provided by Figure 2 allows us to separately evaluate who might be responsible for the teaching requirements in each quadrant. From it, we can propose the following positions:

1. Universities are comfortable with, and effective in, transferring knowledge (quadrants II and III), and over the years they have increasingly accepted growth in professional degrees, both at a graduate and undergraduate level. (Whether this is appropriate, or whether this is even the preference of employers, are separate questions.)
2. Educators resist teaching those skills found in quadrant I, i.e. work-skills, or what I've labelled as "**professional tradecraft**".<sup>2</sup> (The example skills listed are with a focus on a general business career. However, similar tradecraft skills would attend the other professions.)
3. By contrast, universities have little difficulty in accepting the lead role in teaching academic skills,<sup>3</sup> and in fact are increasingly re-evaluating their effectiveness in this

<sup>2</sup> The axes in Figure 2 present more of a spectrum than clear dividing lines. Therefore it is often challenging to make a clear categorization of academic skills vs. professional tradecraft, e.g. whether "working with diversity" and "leading teams" belong in different quadrants. As well, learning certain skills can support the attainment of others, so that an integrated teaching approach might be effective. That said, it is clear that some skills are clearly more tradecraft in nature than others.

<sup>3</sup> Though labeled "academic skills", it is notable that these skills sit in the intersection defined as life-skills, and in many ways they are related to the broader role of an undergraduate as a citizen in a free society (as Dana Gioia might put it). However, to focus more closely on the higher education mission, I have listed only examples that are reasonably within

pursuit. Whether their efforts are adequate or not, there is strong consensus that this teaching is within the domain and responsibility of higher education institutions.

In fact, quadrant IV is closely aligned with lists put forth by universities themselves that define what it means to be an educated person. As an example, Princeton's list is as good as any:<sup>4</sup>

1. *The ability to think, speak, and write clearly.*
2. *The ability to reason critically and systematically.*
3. *The ability to conceptualize and solve problems.*
4. *The ability to think independently.*
5. *The ability to take initiative and work independently.*
6. *The ability to work in cooperation with others and learn collaboratively.*
7. *The ability to judge what it means to understand something thoroughly.*
8. *The ability to distinguish the important from the trivial, the enduring from the ephemeral.*
9. *Familiarity with the different modes of thought (including quantitative, historical, scientific, and aesthetic.)*
10. *Depth of knowledge in a particular field.*
11. *The ability to see connections among disciplines, ideas and cultures.*
12. *The ability to pursue life long learning.*

Furthermore, it is precisely these academic skills that are the focus of employer complaints regarding higher education shortcomings.<sup>5</sup> In a recent survey conducted for the Association of American Colleges and Universities, 7 of the top 8 skills highlighted for "more emphasis" fall within what might be reasonably described as academic skills (*not* professional tradecraft).<sup>6</sup> Employers are simply asking universities to place more emphasis on the skills these institutions themselves have put forth as central to their education mission.

## A Two-Part Solution

In evaluating job candidates employers are all about skills, *all* skills, both academic skills and professional tradecraft; they are influenced less by the "knowledge" imparted by a specific degree.<sup>7</sup> So how do we do a better job of equipping graduates with the skills required in the work force? Since the problem has two parts, so must the solution.

the remit of a university education. Other life skills, e.g. reading, driving a car, managing one's money, we can leave for another day.

<sup>4</sup> Source attributed to Oliver Demille's *A Thomas Jefferson Education* in blog piece by Josh Kaufman "What Must an Educated Person Know?" (August 29, 2011).

<sup>5</sup> This is *not* to say that deficiencies in other skills are irrelevant, only that employers are not asking universities to fix the problem. These additional requirements may include either job-specific skills or so-called character issues, e.g. work ethic, self-motivation, punctuality, attitude, social skills.

<sup>6</sup> It Takes More than a Major: Employer Priorities for College Learning and Student Success (April 10, 2013). Note the parenthetical numbers listed with the example skills in Figure 2 tie to the ranking listed on page 8 of this report. Only the 6<sup>th</sup> ranking skill might (perhaps) be considered outside of the scope of skills considered as those belonging to an 'educated person'

<sup>7</sup> In fact, evidence suggests that it is the individual *effort* applied toward knowledge attainment that drives skills development, not the knowledge topic itself. If employers are biased to engineering and business majors, this may say more to their experience that these majors (generally) attain better quadrant 4 skills as collateral learning in obtaining their

The first part of the solution is for educational institutions to recognize a call for graduates with better skills is **not** a call for more pilot training. The criticism directed at higher education can be robust, this commentator being representative:

*As the report from the Secretary of Education's Commission on the Future of Higher Education, better known as the Spellings Commission, noted several years ago, "There are ... disturbing signs that many students who do earn degrees have not actually mastered the reading, writing, and thinking skills we expect of college graduates. Over the past decade, literacy among college graduates has actually declined."*

*Colleges are focused on teaching kids content, not on teaching them skills, and too many students are focused on passing the multitude of tests in the multitude of classes they take, rather than really learning. One of the best college grads I ever hired (a graduate of Dartmouth) majored in history. In his job at ITIF (a technology policy think tank) he didn't need to know history. What he needed to know was how to think, how to write, how to speak intelligently, how to find information and make sense out of it, how to argue coherently, and how to do basic math. Fortunately, he had acquired these skills.*

Source: *Huffington Post, "The Failure of American Higher Education"*  
*Dr. Robert D. Atkinson, July 1, 2010.*

So that leaves quadrant 1, professional tradecraft. Employers may point fingers at universities predominantly for delivering graduates with weak academic skills (quadrant IV), but they still demand candidates with skills in tradecraft (quadrant I), often specific to their industry. And though they recognize tradecraft training may not be the responsibility of four-year degree programs, this does **not** mean they are prepared to provide it themselves (this part of Essenhigh's contention is correct).

*But I believe that the real culprits are the employers themselves. With an abundance of workers to choose from, employers are demanding more of job candidates than ever before. They want prospective workers to be able to fill a role right away, without any training or ramp-up time . . . [As an Atlanta-based architect put it] "almost without exception, vacancies for architects – the few that are advertised – stipulate proficiency in the new software over all else. Firms apparently can't afford to professionally train the people they have, nor are they willing to train new hires [for fear they will be hired away]. It's a macro labor stalemate . . . there is no training anymore; businesses just hope to hire it in!"*

Source: *"Why Companies Aren't Getting the Employees They Need"*  
*Peter Capelli, University of Pennsylvania Wharton School.*

So, the solution? Universities must continue to re-examine how to more effectively impart academic skills, i.e. in the words of the universities themselves, do a better job of educating graduates. And 'someone else' must figure out how to provide university students with access to professional tradecraft training.

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degrees, e.g. problem sets routinely completed by engineering majors. However, liberal arts majors can obtain these skills as easily, or for some skills, more easily, than their colleagues in more technical majors.