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How Is Innovation

On the Humanities and the Knowledge Economy

FEATURED TOPIC

We owe ourselves and the public a forceful and convincing explanation of why the humanities are worth fighting—and paying—for

Longtime fans of the *New Yorker* will remember Michael Maslin's 1999 cartoon, in which a theater director opens the curtains to ask, "Is there a doctor of literature in the house?" Few funnier incongruities could be staged than calling an English professor to the rescue. PhD graduates in the humanities, after all, have long been known by prospective in-laws as "the wrong kind of doctor." And new interpretations of *The Tempest* are unlikely ever to save lives.

When carried to its logical, curricular conclusions, however, this healthy skepticism

about academic self-importance can start to erode the foundations of American higher education. In the face of limited resources, administrators and policy makers are urged to invest more in science, engineering, and technology programs (Goldin and Katz 2008); meanwhile, liberal arts colleges are on their way to becoming an endangered species (goodbye, Antioch!). But what might look like an inevitable market trend could itself have negative economic effects. Indeed, I argue in this article that the humanities play a determining role in producing not only the "right" kind of doctor, but also the entrepreneurs, engineers, and designers that make the American economy so productive. The reason, I suggest, is that the humanities provide students with the best opportunities for learning how to innovate.

Valuing the humanities (or not)

Humanists do not like to talk about their trade in terms of, well, trade. One of the reasons that many of us pursue graduate degrees and academic careers is precisely to sidestep the corporate ladder. As last year's economic hurricane came crashing down on the ivory

tower, however, it became impossible to ignore that even classes on Petrarch or Pétain could become victims of the Great Recession. And while we may prefer to think about our teaching and research as residing far from the madding crowd on Wall Street, we also owe ourselves and the public a forceful and convincing explanation of why the humanities are worth fighting—and paying—for.

The virtues of the humanities have hardly gone unsung. But their most eloquent champions usually point to lofty accomplishments, underscoring, for instance, the central role of the humanities in cultivating a sense of civic duty and citizenship, in enabling students to assess standards of human excellence, or in developing a sense of compassion for others. In a more practical vein, the skills that the humanities foster—such as a clear writing style, or rational analysis—bear only indirectly on professional success.

The contributions of the humanities to our consumerist society, by contrast, are rarely addressed, and for good reason: however one defines its ambitions, a liberal arts education grounded in the humanities is almost universally viewed as the opposite of vocational education. Taken to an extreme, this perspective led to Stanley Fish's declaration that "to the question 'of what use are the humanities?' the only honest answer is none whatsoever" (Fish 2008).

Remarkably, while representatives of the humanities shy away from, or flatly reject, arguments for their practical value, scholars who do not make their homes in traditional humanities disciplines are actively promoting them. The following three examples from entrepreneurship studies, science and engineering, and medicine illustrate this tendency.

First, the sociologist Mary Godwyn recently emphasized the commonalities between the

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Taught?



goals of the liberal arts and of entrepreneurship: “Entrepreneurship is a tangible, practical manifestation of a liberal arts sensibility,” she argued; “it has economic ramifications that extend the ability of the entrepreneur to engage with social discourse—to develop and express personal identity by influencing the larger social context” (Godwyn 2009). She further encouraged faculty and administrators “to integrate liberal arts and entrepreneurship courses,” a suggestion that will probably fall on deaf ears in most humanities departments. But she also underscored how, for many scholars in the field, entrepreneurship is about more than just business. Like the humanities, it “involve[s] the study and analysis of what is [...] and, by identifying and evaluating opportunities for improvement, consciously contribute[s] to *what will be*.” As we will see, this process of improving an existing situation is very similar to the lessons in innovation taught in humanities courses.

The second argument endorsing the importance of humanistic training comes from a physicist and an engineer. In a recent *Forbes* piece, Mark Mills and Julio Ottino (also the dean of Northwestern’s Robert R. McCormick School of Engineering) made the case that the government funding agencies ought to support “whole-brain” research agendas, as opposed to the usual “left-brain” grant proposals. “Perhaps art, literature or music portfolios [should] become part of the science and engineering application processes,” they propose. Their reason? “Innovation [...] requires the attributes of the humanities found in right-brain thinking: creativity, artistry, intuition, symbolism, fantasy, emotions.”

A final example comes complete with statistics showing measurable gains for students who spend more time in the right sides of their brain. Dr. Joel Katz, of Harvard Medical School, and his team had a group of first- and second-year students spend a little over half their weekly class time at the Boston Museum of Fine Arts, in classes and workshops on art, and the remaining hour in lecture, for a course on physical diagnosis (Naghshineh et al. 2008). A control group, meanwhile, attended the lectures but did not join in the museum visits. At the end of the eight-week term, the students who had participated in the art classes made 38 percent more positive observations than did the students in the control group.

Innovation:

An anthropological perspective

The lasting disdain that many defenders of the humanities display toward utilitarian outcomes seems particularly misplaced in light of such recognition of their importance by other professionals. This importance becomes more understandable when one considers the extent to which ideas have replaced goods as the dynamo powering the economy. Indeed, while politicians still express hopes that America will continue to survive as a manufacturing nation, most economists, businesspeople, and commentators seem to accept the fact that our economic future lies in patents, not products. For these analysts, it doesn’t matter if China or other developing nations take over our manufacturing sector, so long as the Silicon Valleys of the country keep designing the goods. Accordingly, the greatest possible investments our government can make for our future prosperity are those that make our “population smarter and more innovative” (Friedman 2009).

But how exactly does one teach students to be “smarter and more innovative”? Innovation is perhaps the most difficult of all skills to impart. It cannot be learned merely by copying, nor are there any rules for its practice. It is simply something we hope students will pick up on their own, in or out of school. There is even a suspicion that universities can hinder innovative instincts: famously, neither Steve Jobs nor Bill Gates graduated from college.

My argument that humanities courses are better suited to provide students with lessons in innovation may seem to some as laughable as the *New Yorker* cartoon cited above. But I would ask them to pause and consider why certain cultures and nations are more innovative than others. As anthropologists have taught us, all cultures are in fact programmed to be predominantly conservative. Like our DNA, culture is transmitted from one generation to the next, but in a much more instable manner: there is always a risk that the myth, dance, text, or song will be transformed in the act of transmission. For this reason, as Greg Urban (2001) pointed out, many cultures have safeguards to limit the risk of mutations. Elders make children repeat poems or credos word for word; games have strict rules; and schools ensure that the knowledge of generations past does not disappear with the next.

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Of course, some societies also value innovation. Alongside the traditional mode of cultural transmission, there is what Urban calls a modern one. Where in the traditional mode, cultural object *x1* is meant to undergo as little change as possible in the act of transmission, thereby reproducing cultural object *x2* in the next generation, the modern mode accepts that cultural object *x* will be transformed into cultural object *y*, with the assumption that *x* and *y* still bear a degree of resemblance. To put matters more plainly, to the traditional repetition of folk songs over centuries, modern music prefers the remix. To the adoption of traditional garb in tribal societies, modern societies oppose fashion (in French, *la mode*, to which the word “modern” is related).

It is somewhat misleading, in this regard, to speak of “modern societies,” since no culture proceeds by *tabula rasa*, burning yesteryear’s books and records (except perhaps in the case of a cultural revolution). Even for us moderns, conservation is necessary. We do not rewrite the Constitution every fifteen years; and most adults wince when their teenagers mutilate grammar. Moreover, innovation is itself a kind of conservation. The modernist poet T. S. Eliot reworked the *Divine Comedy* in *The Waste Land*; the old Volkswagen Beetle is still perceptible beneath the new. To innovate is thus less to abandon the past than it is to tinker, transform, and revise what came before.

Innovation in the academy

What anthropology shows us, then, is that innovation occurs on a continuum ranging from staunch traditionalism to avant-garde radicalism. Different cultural groups can themselves be situated along this continuum, depending on their degree of preference for a traditional versus modern mode of transmission. An anthropological perspective also highlights how the production of new artworks, commodities, or ideas can be thought of in terms of cultural transmission. This framework for understanding innovation is particularly helpful when we turn our gaze to the academy.

Like cultural groups, academic disciplines can also be characterized by their variable emphasis on reproducing versus transforming

knowledge. Organic chemistry, for instance, might be described as a more “conservative” field than, say, neurobiology: because the former has been explored for much longer, the knowledge that one generation of organic chemists transmits to the next is rarely challenged by new findings. Graduate stu-

dents in neurobiology, conversely, will almost certainly produce theories about the brain that contradict the assumptions of their professors. Similar distinctions could be made in the humanities: the study of logic, in analytical philosophy, changes at a far slower pace than, for instance, the study of revolutionary movements, in history.

It might be objected that, regardless of the discipline, scholarly research is by definition an attempt to modify an existing body of knowledge. In that case, innovation, understood as the *transformative* mode of knowledge transmission, could equally well be experienced in, or exemplified by, any field. To an extent, this is true: freshman seminars at research universities seek to introduce students at a beginner’s level to the excitement of research in, say, electrical engineering, marine biology, or U.S. constitutional history.

When one considers the curricular requirements of most scientific majors, however, it becomes equally apparent that the majority of courses focus on *reproducing* knowledge in the students. Neurobiology may be a field in flux, but before you can study the interaction of synapses, you need a solid foundation in biochemistry. Today’s majors in theoretical physics may go on to discover new subatomic particles and rewrite the rules of quantum mechanics, but first they have to master the more mundane—and largely unchanging—practice of deriving integral equations.

Of course, humanities disciplines are also structured around canons of knowledge (even if these canons are more liable to change). You cannot major in French without having read a number of seventeenth-century plays and nineteenth-century novels; if you never read a page of Kant, you probably won’t be allowed to major in philosophy. But the real difference between studies in the humanities and the sciences resides in how their respective canons are assimilated. Students studying the

American Revolution, for instance, are not only expected to know the names and dates of all the important players or events. They are also obliged to demonstrate that they can make sense *on their own* of the material; that they can develop *original* arguments about reasons, motivations, and outcomes for the past.

This point may seem overly subtle, but it becomes clearly evident in the case of final papers. If you provide the same answers as fifty other students on a calculus exam, you may very well get an A—assuming, of course, that those were the correct answers. But if you hand in a final essay for your American history course, in which you develop the same thesis as fifty other students, you would most

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likely *not* get an A, since original thinking is one of the criteria used to evaluate a student's understanding and assimilation of material.

Furthermore, while science and math classes may on occasion demand that the students find innovative methods for

solving problems, the humanities demand originality from day one. As I recounted in an earlier version of this piece (Edelstein 2009), I first became aware of this expectation when teaching an Introduction to the Humanities course to freshmen at Stanford. Speaking with me after class, two Chinese students expressed their confusion at having to write papers that defended an original thesis. Their high schools had focused only on memorization,



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whereas we were asking them to explain what *they* thought about literary texts.

What took our international students by surprise is precisely one of the central ingredients of American liberal education. As part of our ambition to create independently minded individuals, we encourage students to think for themselves. They might not come up with ideas that are “original” in the grand scheme of things, but they are expected to reach conclusions on their own. The entire reward system of the humanities, moreover, favors those students who either make a convincing case for an unusual argument, or an unusual case for a convincing argument. In both scenarios, high grades and prizes go to students who demonstrate the most originality.

Classes in the humanities not only offer students the best opportunities to practice innovative thinking, but also provide them with models for how to do so. Professors, after all, are not simply there to transmit discrete data packages about books, compositions, theories, or events, but rather to show the students how one goes about piecing together an argument and narrative around a subject. Professors “perform innovation” when they offer, say, a political reading of *Hamlet*, an economic interpretation of the American Revolution, or a Hegelian analysis of Marx. The best pedagogical practices in the humanities draw attention to the fact that the knowledge being conveyed is questionable. This is not an invitation to rampant revisionism or postmodernism, but a simple recognition that historical, literary, political, and anthropological knowledge is not made up of equations or organic structures, but of perceptions, arguments, aesthetic effects, philosophical concepts, and other representations whose signification is subject to change. The words of *Hamlet* or of the Declaration of Independence may not vary, but their meaning can.

A humanist turn

To sum up, it is not that humanities disciplines are more innovative than their scientific counterparts: it is simply that students are required to practice innovative thinking earlier on in their studies. Though there is a great difference in outcome between, say, a close reading of Balzac's *Père Goriot* and the development of a new software operating system, both rely on similar cognitive processes. And

students will be exposed to these processes more often in humanities than in science or engineering classes.

Some might still consider this to be a self-aggrandizing claim of the sort humanists are rumored to be prone. But what these examples and arguments highlight is that the cognitive leap between, say, analyzing a Picasso portrait and diagnosing a patient is not that wide: though the subject matter is different, the intellectual process is closely related, and training in one field carries over into the other. The work done by students in humanities fields can have direct benefits for a wide array of professional activities. Who knows? Maybe doctors of literature can help save lives, too. □

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