Excerpts from:

Unity in Diversity: The Virtues of a Metadisciplinary Perspective in Liberal Arts Education

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SEEING THE ENTIRE ELEPHANT

Remember the story of the blind men and the elephant? Each man touches a different part of the animal (its side, trunk, tusk, leg, ear, and tail) and pronounces his find a wall, a snake, a spear, a tree, a fan, or a rope. As the poet Godfrey Saxe (1816-1997) wrote of the blind men in his retelling of this ancient Indian parable, “Though each was partly in the right, they all were in the wrong.”

This allegory quickly encapsulates the benefits, and the challenges, of seeing, or not seeing, something through multiple perspectives—in short, it illuminates the perils of hasty reductionism. Of course, this object lesson also demonstrates the hard truth that all of us, based on a single outlook, are generally quick to make up our minds, often stubbornly so, despite what everyone else tells us. A seeing person can make sense of an elephant, certainly, but if each of the figurative blind men had merely moved around the creature, or simply listened to his companions, he might have “seen,” inside his mind’s eye, exactly what he was dealing with. Only with a combination of all these diverse vantage points does a truly unified, realistic picture appear. A unique perspective does not preclude one from finding “truth,” but it’s hard to dispute the conclusion that with multiple perspectives one can arrive at the truth much more quickly, conveniently, and reliably.

Many people learn this lesson late in life. Perhaps some never learn it at all. Clearly the best and most opportune place to learn the advantages of multiple perspectives is in college, preferably through a multidisciplinary liberal arts education (though not a traditional one, as will be explained). Many entering college students have not yet moved beyond a concrete view of the world, but we can hasten their intellectual development by showing them the virtues of a holistic education, with a firm basis in Socratic self-knowledge and an emphasis on unified knowledge.

UNI-, MULTI-, AND METADISCIPLINARY STUDY IN THEORY AND PRACTICE

Many metaphors have been employed to describe the journey students take during their college years: climbing mountains, crossing a sea or a desert, even jumping through hoops or moving over hurdles. All of these metaphors share a common theme, of course: moving forward. As students grow and learn they make progress, and they inevitably, invariably see things in a new way. This result—learning to analyze issues from multiple perspectives—should not be seen merely as a fortuitous outcome of education; rather, this must be the definitive goal. Multiple perspectives are not only conducive to but in fact essential to a modern liberal arts curriculum. As students take courses in a variety of disciplines, we hope that they see patterns and processes, concepts and connections linking one field to the next. They should find bridges between subjects. They should search for disciplinary parallels and intersections. They should learn to relate ecology and economics, public policy and government, history and literature, and so on—what Marion Brady has aptly termed a "seamless curriculum" (Brady, 1989), or what I call a "metadisciplinary" perspective.

Educators often speak of interdisciplinary or multidisciplinary emphases that combine traditional disciplines of scholarship and teaching. Such an emphasis might lead students to learn not merely about political science, for example, but about political science in conjunction with history or philosophy. However, by metadisciplinary I am referring to a larger curricular focus that transcends or supersedes traditional disciplinary boundaries to create a truly holistic, systemic, integrative worldview uncluttered by familiar limits and barriers. Instead of merely linking two or more customary fields together at their margins, a metadisciplinary focus reveals that all such fields are fundamentally related in numerous significant ways, both theoretically and practically.

Such a focus demonstrates that no one can legitimately study political science without due consideration of history or philosophy. The real world is not neatly divided into separate realms (of economics, politics, etc.), so why should education be? In sum, a metadisciplinary curriculum is one in which traditional fields *must* be viewed together, as corequisites. One could study only elephant ears or tusks, but one must see these as components of a coherent, unified whole.

It is a curious fact that even as fields of study become more and more narrowly specialized—as the world of academe becomes more splintered and esoterically arcane—the world is becoming a decidedly "smaller" place. Improvements in technology have rendered global travel and communication almost effortless and instantaneous. It is now truly a small world after all. Having such a diverse student body makes obtaining a multi-perspective education ever more crucial, just as it should make it simultaneously easier.

But just what is a "multi-perspective education"? To answer that query—and in particular to demonstrate why multiple perspectives are essential in education—one must address an even more fundamental question… *What is the purpose of education at any level?* Is it to teach students *what* to think or rather *how* to think?

Western culture in general, and Western education in particular, is preoccupied with reductionism: taking things apart so that we can see how they function; reducing them to ever-smaller substituent bits. The problem with this reductionist approach is that the world is, to put it mildly, a fairly complicated place, as are many of its parts—in fact, so complex that no one can ever hope to master more than one or two discrete parts. Hence our standard curriculum schools each student briefly and cursorily in many subjects—language, social studies, math, science, etc.—before more comprehensive education, eventually, in only one of them. After all, the common thinking goes, one can't be an expert in anything, precocious polymaths excepted, and it is better to know a lot about a little than a little about a lot of things. Once a student's interest is narrowed to science, for example, then there are several sciences to pick from. If one chooses biology, one must typically then select from deeper concentration in field biology, premedical studies, biotechnology, or another such specialty. Taken to its extreme, this view supposes that knowledge comprises bits of information from various isolated disciplines.

But is this a realistic depiction of reality? More to the point, is this a productive model for education? The things we try to understand in the real world—whether in business, politics, or any aspect of society—virtually never fall into neat little categories that correspond to the fields we are taught in school. To stretch my metaphor to the breaking point, there are no partial elephants in the real world, only whole elephants, and students should be trained—must be trained—to see the entire elephant.

It must be noted that a metadisciplinary emphasis can blur but not completely obliterate such boundaries between disciplines, and that such an emphasis better enables one to see significant differences between fields.

Whereas familiar disciplines provide a handy framework with which to organize and operate our society, they don't, unfortunately, help people to see or study the whole of it. By no means are our familiar compartmentalized disciplines the simplest or best way to formulate an overall general education. In place of this exclusively reductionistic regime we need to integrate a holistic, synthetic outlook. There are two ways to achieve this. One approach is to begin with a topic, problem, or theme and bring various disciplines to bear on it, examining all sides from lenses of diverse disciplinary perspectives. A markedly different approach is not to examine disciplines head-on, but to treat them tangentially, by using them as sources of interconnected facts, ideas, and insights that help students to make sense of the world and their place in it. No matter which path we choose, we need not abandon or wholly revamp our Western science-based reductionist approach and replace it with New Age meditation or "touchy-feely" self-esteem workshops, but we must abandon the outdated, simplistic assumption that the traditional disciplines segment reality in the most useful way possible.

No matter what one envisions as the principal purpose of education, it's clear that what all students need is a way to stay engaged and interested. They need to distinguish what is important from what is trivial. They need to know where knowledge comes from—how we know what we do. They need a system that organizes their information, so that they can remember it for more than a few hours or days, and so that they can cope with new problems and situations rather than simply regurgitating facts. They need a system that makes clear the systematically integrated, mutually supportive nature of knowledge. Above all, we need a system that can instill these abilities in all students, regardless of their particular learning styles, their strengths and weaknesses, so that all students can understand and articulate—and appreciate—why education is so valuable for ourselves individually and for society as a whole.

The problem is that while each discipline does a job worth doing, collectively they leave undone a central mission. They don't show students the whole—the complete elephant, if you will—of which the varied disciplines are random parts, scattered legs and ears and tails. The problem

is that from elementary school onward, even in the majority of college honors courses, we do not teach students with such a system, because our collective curriculum is based on disparate disciplines that developed at different times, with vastly different approaches and methodologies, with different aims and goals, and with different terminologies and technologies. The traditional disciplines employ wholly different conceptual frameworks. Each ignores vast areas of significant knowledge and operates at a different level of generality.

Can you remember even a fraction of what you were taught in trigonometry, anatomy, or philosophy? If you are like me, you are more likely to recall professors' odd and interesting anecdotes than anything that would help you pass such a course again. In this sense, then, an enormous investment in time and energy, on the part of both teacher and student, yields minimal long-term return. The traditional disciplines—geology, economics, psychology, and so on—are legitimate academic fields of study, but they are not ideal for an overall educational curriculum. They may be useful approaches in the scholarly search for "new" knowledge—and they do allow one's mind to stretch and grow—but they are not so useful in disseminating "old" knowledge.

Instead of merely filling heads with facts from books, lectures, and documentaries, why not also learn by sorting information into broader, metadisciplinary domains, by noting patterns and relationships? Our students will surely be better served if we raise questions that require careful contemplation rather than simple reiteration or regurgitation, and if we conduct exercises that require contemplation rather than rote memorization. We can teach students better if we help them to see the holistic, systemic, emergent nature of knowledge, even if we must rebuild things that have been taken apart by the prevailing culture of reductionism. We must help students to forge connections and investigate relationships. We must take advantage of each individual's natural curiosity, urge to explore, and desire to synthesize a coherent whole of experience.

CUTTING A MAGNET IN TWO

Students occasionally wonder what practical value, if any, their education holds. "What use will I ever have for calculus or sonnets?" What is generally overlooked in this analysis, however, is the fact that education (particularly in college) is not, and should not be, merely about committing facts to memory. It is about learning to see the world in new ways, from new

perspectives—about breaking free of preconceived views, typically static and one-sided, and adopting a broader stance in which multiple views can be ascertained and accepted simultaneously. In this regard a metadisciplinary perspective is invaluable.

When considering any complex or controversial issue, I invariably admonish students to remember both sides of the proverbial coin. Even if one's mind is firmly planted on one side of an issue, one should at the very least try to see and understand the other side. Put yourself in someone else's position. Trying to imagine why other people hold a view opposite to yours is a valuable exercise that generally broadens, sharpens, and strengthens one's own perspective even if it does not change it. One has virtually nothing to lose from such an exercise and more than likely much to gain.

Sadly, in modern public discourse people rarely admit to recognizing alternative points of view, let alone announcing they are conflicted as to which view is best. It is easy to imagine such a response—"I agree with those who say X, but at the same time I see the strengths of those who argue Y"—as a sign of intelligence and open-mindedness. Possessing an ability to understand and hold two positions at once, and having a broad metadisciplinary background from which one has been exposed to widely varying points of view, can only render a person wiser and more sensible. Admitting that one sees, at one time, more than one or even two sides of an issue, rather than simply seeing each issue as a concrete, cut-and-dried, black-versus-white thing, is a sure sign of intellectual development.

These days, it seems the third worst thing for any leader to do is to compromise his or her position and meet someone else "halfway." Politicians are expected to stick to their guns and stonewall the opposition, even if it ultimately means achieving none of their initial goals. The second worst thing in politics is for a person to change his or her mind. One is simply not allowed to do that, for it is exposed as the ultimate sign of weakness, even worse than compromise, concession, and conciliation. "You can't say that or vote that way—twenty years ago you held a contrary position!" Never mind that a person may have grown and matured, that she may have listened and read and generally kept an open mind about the issue, preferring to hear new arguments even as her mind

was made up. Once you express a position in politics, it can be a career-ending kiss of death to admit you have reconsidered that position. Never "flip flop." And if you ever switched political parties, that must be kept secret. But the absolute worst sin in politics must be indecision. Make up your mind right away—don't bother taking time to listen to or think about other views. Only a nebbish wimp gets a second opinion. He who hesitates is lost.

This is not to say that there aren't times when one should have a clear and ready monolithic view. I am not advocating utter relativism. Nor do I mean to imply that wishy-washy, namby-pamby indecision is the goal. Sticking to one's principles is paramount. However, self-reflection and internal debate are among the thinker's oldest, simplest and most useful tools. Showing "backbone" is important, and we need not frequently change our minds, but we ought never to close them. It is important to have convictions, but even the firmest view must be revised in the light of new evidence.

Perhaps the analogy of a two-sided coin is unsuitable, as most arguments and issues better resemble multifaceted gemstones, with sides glinting off in all directions. Still, there are always at least two sides, and I can't help but try to envision and embrace them both as I mull over any topic. As a biologist, I like to say that we have bilateral symmetry to create backup systems and make our lives easier. One kidney stops working? Well, fortunately, we have a backup. That may be a reasonable scientific view, but it is also fair to say that having two hands enables us to weigh, literally, two objects—to balance, figuratively, competing points of view.

What about your campus? For every influence that increases the diversity of perspectives, there appears a counteracting force that decreases it. On the one hand, more college students are studying abroad than ever before; on the other hand, today's students are more likely to eat at a McDonald's overseas than students a generation ago. On the one hand, there are more international students at American colleges today; on the other hand, they may be as familiar with Coca-Cola, Levi's jeans, and reality TV shows as American youth, and they may speak English as well as their native language. Even U.S. children may be more likely to live in multicultural neighborhoods, but there may be more peer pressure than ever to conform to expectations—to dress and act a certain unified way. On the one hand, children today "grow up faster" than ever due to the pervasive modern culture of TV, movies, videogames, and so on, but on the other hand, they

may be more narrowly specialized than ever, as coaches and parents counsel them to specialize in one sport or activity rather than partaking in a variety of pursuits.

The bottom line is that few things are as simple as they seem. Most are like our elephant, with new aspects that emerge upon closer examination. Just as every classroom benefits from dialogue, discussion, and debate, every single person's mind benefits likewise from an ongoing internal dialogue. This holistic "debate within" is similar to what happens within any magnet, which simultaneously holds opposing polar forces. As humanistic psychologist Abraham Maslow pointed out, one can't cut a magnet in two. Every magnet is a dipole, having both a north and a south pole. Take a simple bar or horseshoe magnet and try to cut or otherwise break it in two. You'll end up with two pieces, but each fragment is a wholly new dipole. There is no such thing as a unipolar magnet—each is a holistic entity, combining different strengths, indeed polar opposites, into a unified whole. As with our archetypal elephant, and with an ideal metadisciplinary curriculum, unity arises from diversity.

This is of course the meaning of the Latin motto *E pluribus Unum*: "Out of many, one." Unfortunately, even when our stereotypical politician recognizes multiple points of view, it's generally in an "us" versus "them," black/white, wrong/right scenario, leading to bickering, bipartisan debate. Seldom are subtle nuances and shades of gray recognized; the focus is customarily on what separates us rather than (as with a magnet) what unites us. Like a magnet, a metadisciplinary perspective focuses on holistic unity arising from various diverging (often competing) views.

In his landmark study on the intellectual development of college students, William Perry (1970) observed that students initially have a very low tolerance for ambiguity. According to his work, most freshmen begin with a simplistic, absolute view of the world; only with considerable time and experience do they recognize the contingent, contextual, relative nature of knowledge. Only then will they acknowledge there are multiple perspectives to a given problem or topic, and eventually accept ambiguity. As noted, modern politicians seem to be rewarded, at least in the United States, for holding rigid positions. They seem invariably to be soundly and roundly criticized for espousing nuanced, balanced views instead. However, there is

no reason why educators should not foster in their students the latter approach. Simplistic statements play well in sound bites or on bumper stickers but bear little connection with or application to the real world.

SOME PRACTICAL ADVICE ON ELEPHANT OBSERVATION

The word intellectual is not necessarily synonymous with academic, for students learn a lot outside of class. Nonetheless, most students, raised on a steady diet of pop ephemera and instant gratification, are typically hungry for something more filling, even if they won't readily admit it. One thing students need is a broader framework upon which to hang all their apparently disconnected bits knowledge. This is precisely what a metadisciplinary education provides. In my field, biology, as in other disciplines, there is no longer a single conference or journal that "covers" the entire discipline, as there was a century ago; indeed, there are thousands of specialized splinter groups and publications. Sadly, it is impossible to learn everything there is to know about biology today. But a biologist can always communicate with and seek the input of others, so as to build the most complete, comprehensive, coherent, concise picture possible. In other words, our metaphorical elephant is too large for anyone to examine in its entirety, but via metadisciplinary, multiperspective study anyone can learn of every aspect of the whole animal.

Further, I honestly cannot teach biology without making constant reference to economics, public policy and government, psychology, history, literature, philosophy, religion, art, modern and classical languages, especially Greek and Latin, and so on, not to mention physics, chemistry, and mathematics. As a firm believer in metadisciplinary education, I know that all these subjects are intimately related. When I discuss food webs, nutrient cycling, or energy transfer in ecosystems I can't help but point out myriad implications for human society. Not only do I feel a need to share this intricate web of interconnected, interwoven fields with students, but I know I would do them a grave disservice as (potentially) future biologists and (certainly) future citizens by depriving them of this knowledge. No matter what they do upon graduation from college, they will need to know about the complex ramifications of genetic testing, of environmental impact, and of so much more.

The challenge is that most textbooks are written by specialists, and many of the previous teachers our students have encountered have been taught to focus narrowly on their subjects—or mandated to prepare their students for

very specific standardized tests—at the expense of such multi- or metadisciplinary perspectives. Never mind that science taught without a healthy helping of history, philosophy, and literature is obscenely sterile and mind-numbingly dull; I would go so far as to say that one cannot learn science independently of such subjects. This is especially significant since many science students (particularly in introductory-level courses) will not become scientists but will instead pursue careers in business, law, service, entertainment, etc.

At the same time, however, I would passionately argue that humanities and social science courses must involve and at least make reference to science, this not despite the obvious fact that such disparate fields of study employ strikingly different research methodologies, but indeed because of it. Close associations, correlations, and connections, causal, historical, linguistic, political, economic, and so on, exist between all fields of study. Our world is one great big place—a world-sized elephant, if you will—and to do it justice we must not see each part as a disconnected bit, but rather as a piece of the whole. When my students say, “Can I see that? Can I see the elephant?” I know what they really mean. They don’t merely want to observe it from a distance. They want to pick it up, turn it all around, and explore every nook and cranny of it, every bump and protuberance—something they have learned to do from infancy. That may not be the only way to learn, but all our life experience surely teaches that it is the best way.