

Why a Core?

James Bernard Murphy

Liberating the Core from the Culture Wars

Discussions about whether schools should encourage or even require students to complete a core curriculum during their first two years of college typically founder on the shoals of intractable normative debates about what ought to be in the core. Ever since the seventeenth-century “quarrel between the ancients and the moderns,” scholars have waged inkwell wars over the aesthetic, moral, and intellectual worth of various domains of learning. Some advocate for modern writers over ancient; some champion Hebraism over Hellenism; some favor the humanities over the natural sciences. Today, discussions of core curricula instantly descend into the familiar arguments for and against a canon of great books, multiculturalism, and Western civilization. These battles over the intrinsic worth of various domains of knowledge are inherently interminable and not directly relevant to the question of what belongs to the core of a college curriculum. The word “curriculum” refers to a circular racecourse: a scholastic curriculum leads a student around the circle of knowledge. What we must first consider is not what should belong to the core of knowledge but what does belong to it, and this, as we shall see, can be determined mainly on objective grounds. Of course, deciding what belongs to the core of the college curriculum leaves open many other important curricular questions about the structure of major and minor subjects, language and foreign culture requirements, and electives.

I will argue that the core of a college curriculum ought to focus on the relatively settled core of human knowledge rather than on the rapidly-changing controversies at the frontiers of inquiry. The core of human knowledge is that body of concepts, facts, and texts presupposed by all advanced study in the various disciplines. That essential core of knowledge can be identified largely without recourse to normative controversies about the worth of different fields of study, as I will attempt to show. We need to introduce our students to the actual core of human knowing so that one day they might be in a position to assess and to make contributions to the frontiers of knowledge.

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Just as there are some goods, such as life, liberty, and property, that any person should want, no matter what his conception of a good human life, so there are some intellectual goods that any person should want no matter what his ultimate judgments are about the worth of particular disciplines, canons, traditions, or texts. A core curriculum includes precisely those fundamentals of the key modes of human knowing valued by anyone who seeks genuine knowledge both for its own sake and for the sake of a reflective human life. This core is just as central to champions of the moderns as to champions of the ancients, as central to champions of the West as to champions of other cultures, as central to defenders as to critics of our civilization. First, because human knowledge has an objective structure in which some kinds of concepts and texts grant strategic access to many other concepts and texts, the points of strategic access are at the core and what they give access to is at the frontier. Second, because in human learning a basic cognitive map is essential to the acquisition of sophisticated new knowledge, those basic cognitive maps belong to the core of the curriculum. Third, because rationality is achieved only in the mastery of particular disciplines, the fundamentals of those disciplines belong to the core. And finally, because a human life as a whole is enriched by some disciplines more than by others, those disciplines belong to a core. The core of a college curriculum should be defined not as what is most worthy, but as what is most necessary for access to disciplined knowledge, rationality, and a reflective life.

A focus on the core of human knowledge protects the intellectual integrity of the core curriculum from passing academic fads and from ideological manipulation. First, the core of human knowledge certainly evolves over time, but slowly. For example, the Newtonian core of modern physics and the core of calculus in modern mathematics are centuries old; the essentials of world history and literature do change, but not quickly. This gradual evolution keeps the core of knowledge relevant while protecting it from passing fashions. Second, no one can deliberately stipulate what belongs to the core of human knowing and what does not. The core essentials of human knowledge just are what they are; they cannot be altered by any deliberate decision. Of course, we can argue about what is at the core and about what parts of the core ought to be included in a core curriculum, but what constitutes the core of human knowledge is discovered, not invented. The core of knowledge evolves slowly in response to the myriad efforts of discovery, criticism, and evaluation at the frontiers of inquiry. The core of knowledge is the precipitate of the sum total of human intellectual endeavor but is not the product of any deliberate human project, agenda, or decision. So a focus on the core of human knowing protects the core curriculum from attempts to use it as a vehicle for ideological indoctrination. But even finding what is actually at the core of human knowledge has become increasingly difficult.

The Challenge of Finding a Core amidst the Profusion of Knowledge

A little more than a century ago, most liberal arts colleges in the United States required a fixed-core curriculum for all students, based on classical languages and on mathematics. But the explosion of new disciplines and the new emphasis upon faculty research challenged the hegemony of the traditional disciplines in the college curriculum. At the close of the nineteenth century, Harvard College abandoned its fixed curriculum in favor of electives and, later, a choice of major and minor subjects of study. During the first half of the twentieth century, most colleges offered both a core required curriculum and a range of electives. But by the end of the century, most schools had gone from offering no electives to offering only electives, from a core curriculum for all students to a core curriculum for none. With the inundation of new kinds of knowledge, the profusion of new disciplines, and the rapid growth in specialization, the very idea of a core curriculum seems hopelessly outdated. A core curriculum seems to attack the notion of the equal worth of all branches of knowledge. And the valuable principle of student freedom of choice, which led to the offering of electives, has grown to challenge all core requirements.

Today, with the rising racial, ethnic, and national diversity in our schools, the quest for a core curriculum for all college students appears more quixotic than ever. In addition to the growth of many new disciplines, even older disciplines are being reconfigured into new programs in gender, ethnic, and cultural studies. Many of these particular new programs of study will go the way of the former departments of home economics and of biography, but the growth of new fields, ever greater specialization, and the inundation of knowledge will continue. Faculty are more and more tempted to teach undergraduates material at the exciting frontiers of knowledge rather than to equip their students with the settled bodies of knowledge that are needed before one can contribute to the frontier. The very richness of the new profusion of knowledge makes it very difficult to discern any center. Finding the central core is like trying to locate the trunk of a bramble.

The Structure of Knowledge

Because all new knowledge is discovered by means of older knowledge, all knowledge is connected. The tree of knowledge is a profusion of branches that can all be traced back to its primary limbs and trunk. Some of the branches of our knowledge are connected by historical causation. Aristotle was the historical cause of many branches of knowledge, just as Virgil was the historical inspiration for much of later epic literature. In general, what comes earlier shapes what comes later. Other branches of knowledge are connected by relations of logical dependence: calculus assumes algebra, chemistry assumes some physics, and biology assumes some chemistry. Whether these relations are causal or logical, they are asymmetrical. Aristotle does not presuppose Galileo, and

Virgil does not presuppose Milton; algebra does not presuppose calculus, and physics does not presuppose any biology.

So if we think of all knowledge as a network, some nodes of that network will have many more connections than other nodes. Aristotle will have more connections than will Einstein, because Aristotle's ideas have been taken up in many more branches of knowledge and for longer than Einstein's have. This is why Aristotle's name appears in the *Encyclopedia Britannica* more often than any other name. Virgil has more connections than does Milton because more writers are influenced by him than by Milton. Physics will have more connections than biology because physics is logically prior to biology. So some kinds of knowledge are more historically and logically basic than others because they have more connections to the rest of the web of knowledge. The fact of being more fundamental or basic certainly does not imply more truthful or more beautiful. Virgil is not better than Milton, and Aristotle is not better than Einstein, just as physics is not better than chemistry. But if you want access to the web of human knowledge, it makes sense to start with Virgil, Aristotle, and physics, because they will give you access to the widest range of human learning.

We measure the importance of these network nodes in various ways. Citation indices count how many times an author is cited as a measure of his or her connections to the web of knowledge. The authors most cited in a field may not be the best scholars but they are the most influential; and if one wishes to engage that field, one must read those scholars. Citation statistics for any point in time are likely to reflect temporary fads, but citations over millennia reflect deep and permanent influence. Similarly, every patent must cite the other patents that it draws upon, so by this citation we can measure the degree to which a given patent is connected to others. A highly-cited patent is not necessarily a better patent than others, but it is more seminal, more influential, more connected. Perhaps the most famous measure of the connectivity of the nodes of knowledge, though, is the Google search engine. Google is efficient because it creates a hierarchy among the vast network of websites according to the number of links that each site has to other sites. So, of all the websites that contain the phrase we seek, Google takes us first to the anchor sites with the most connections to the rest of the web.

So even if all knowledge is created equal, not all authors and ideas are equally connected to other kinds of knowledge. Not all ideas and authors are equally basic. The notion of a core curriculum, therefore, rests fundamentally not on aesthetic, moral, or political criteria but on the objective criteria of the sheer density of its connections to the whole of human culture. If the Google search engine were to rank authors, texts, or disciplines according to the degree to which they are dense network nodes or anchor sites, then Aristotle would be above Einstein, algebra above calculus, and physics above biology. The significance of most concepts and texts properly included in a core curriculum can

thus be objectively assessed. Sheer age certainly does not guarantee connectivity: think of all the ancient but defunct religions, pseudo-sciences, and legends that have remained on the periphery.

If education is to be an initiation into the primary modes of human knowing, then we must find a way to cut into the dense bramble of the web of knowledge. Given the finitude of human life and the infinite range and density of human knowledge, the only feasible way to navigate this web is to begin with the key network nodes, with the anchor sites. Among the strategically located nodes, there are many possible entry points. There is no completely objective metric by which to determine which of many key nodes is the best or best for a particular educational setting. Ultimately, additional aesthetic, intellectual, and moral criteria will be necessary to select the precise disciplines, authors, and concepts for study. For example, because Plato's own writings were unavailable for so long, the neo-Platonist, Plotinus, has had immense influence on the whole history of Western philosophy—perhaps even more direct influence than Plato himself. But, on a host of other criteria, Plato deserves greater prominence in a core curriculum than does Plotinus. Nonetheless, the process of selecting a core curriculum can be largely guided and justified by the objective salience of some kinds of knowledge in the web of human learning.

The Logic of Learning

Plato was the first to formulate the paradox of learning by noting that we cannot learn something unless, in some sense, we already know it. Try finding a word in the dictionary without knowing something about how to spell it. Aristotle opens the *Posterior Analytics* by observing that we can learn only because of what we already know. Knowledge builds upon knowledge. Today, modern psychology amply supports these ancient insights. Cognitive psychologists talk about schemas and other modes of representation by which human beings make sense of new experience by assimilating it to what we already know. Empirical studies of expert knowledge show that in any situation, the person who will learn the most is the person who already knows the most. A chess expert learns much more from watching a chess game than does a chess novice. The more we know, the more we can learn and remember from experience, from reading, or from calculating. Our existing knowledge is what some pedagogues call our intellectual Velcro: it provides hooks upon which to hang what we learn.

In view, then, of what we know about the psychology of learning, it is imperative to provide students with the right kind of intellectual Velcro—that is, with the kind of facts and concepts that have the most hooks to other important facts and concepts. To become initiated into the primary modes of knowing means acquiring that knowledge most strategically connected to the whole web of knowledge. We want our students to master the network nodes of knowl-

edge so that they can connect rapidly to other domains rather than acquire merely peripheral branches of information that do not lead them anywhere. Even very basic history, science, and philosophy will take a student much further than will even advanced knowledge of popular music, astrology, or eBay.

The logic of learning in some ways mirrors the structure of knowledge. Some knowledge is a strict logical prerequisite for other knowledge: addition is a prerequisite for multiplication and algebra is a prerequisite for calculus; spelling is a prerequisite for grammar, and grammar a prerequisite for rhetoric. Another kind of relation is that of background to foreground in the comprehension of meaning. Language is much more than words and rules. Reading with comprehension requires essential background knowledge as much as it requires skill in decoding syntax. Consider reading a local English-language newspaper in Auckland or New Delhi: all my decoding skills would not help me understand what I “read,” since I lack the necessary background knowledge of local culture and politics. Any daily issue of the *New York Times* makes reference to more than 2,000 facts and concepts which the reader is expected to know. Basic literacy, then, presupposes mastery of the strategic nodes of human knowing.

All works of Western literature, for example, are connected by relations of intertextuality. Every literary work tacitly echoes or explicitly references—and is echoed or referenced by—other literary works. So in a strict sense we could not fully comprehend any work without already knowing all other works to which it is connected. But the web of intertextuality, like all other webs of knowing, has strategic network nodes or anchor sites that give optimal access throughout the web. Chief among these key nodes would be the Bible, Homer, and Cervantes. Mastery of the strategic nodes—the most influential authors—is essential for access to literature.

The cognitive psychologist Jerome Bruner talks about the paradox of learning in terms of a spiral. We learn by returning to what we already knew but at increasingly higher levels of sophistication. If we first acquire a vague but general outline of history, for example, then we can keep relearning that outline by filling in details as we spiral up. Of course we also revise our earlier understanding in the light of subsequent knowledge. But our spiral cannot get started if we do not begin with a comprehensive and strategic set of initial parameters. Where there are significant gaps in our basic knowledge, we will find it very difficult to learn and to retain newer and more specific information.

Rationality and the Disciplines

I have defined education as an initiation into the primary modes of human knowing. These primary modes of knowing are the academic disciplines; they are the limbs of the tree of knowledge. It is easy to denigrate the academic disciplines on the grounds that they are highly artificial, if not arbitrary. Those who work at the frontiers of inquiry are especially likely to notice shortcom-

ings of disciplinary boundaries and the need to combine disciplinary approaches. But the fruits of interdisciplinary understanding presuppose prior disciplinary mastery. True, the world is not divided into disciplines, but knowledge and rationality are. If we were to measure the connectivity of the whole network of knowledge, we would discover distinct patterns of dense connections that would correspond to the disciplines. There are many more connections within chemistry and history than there are between chemistry and history. So disciplines are far from arbitrary; they reflect the objective structure of human knowing. Moreover, to be rational just means to judge, believe, and assert in accordance with the norms of a particular discipline. Rationality means thought in conformity with the evolving public standards of a particular mode of human knowing. We are not by nature rational; we are only capable of becoming rational. Cognitive and social psychologists have shown that naïve and unschooled human thought is riddled with biases and fallacies which are partially overcome only by the painstaking mastery of disciplinary standards of thought. Experts in one field are notoriously vulnerable to fallacious thinking in other fields. There is no royal road to rationality: students who take courses in logic or in argumentation do not become sound reasoners across domains of knowledge. Even students who complete courses in basic college physics tend to fall prey to naïve and fallacious assumptions about the nature of motion. Rationality, to the extent to which we ever achieve it, is the fruit of the mastery of particular disciplines. So a core curriculum must provide an introduction to the primary modes of knowing so that students can be in a position to judge which discipline to select as a major and to aspire to rational thought in at least one domain of knowledge.

Disciplines and Education for Life

If education is an initiation into the primary modes of human knowing, then what are those modes? A core curriculum must prepare students for whatever disciplinary focus they choose, but, more important, a core curriculum must prepare students for life. Education must be distinguished from mere training. We normally say that someone has been trained as an historian, chemist, literary critic, or philosopher; we do not normally say that someone has been educated as an historian, chemist, literary critic, or philosopher. We are educated, not for some particular task or occupation, but for life. Educated persons are those whose knowledge illuminates and vivifies all of their moral, aesthetic, and intellectual pursuits. As spouses, parents, and citizens, they reflect upon their conduct in light of what they know from literature, history, science, and philosophy. A walk through nature or through a museum is redolent with insights from art history: they might even regard a sunset, like Oscar Wilde, as “second-rate Turner.” Every moment echoes with history and each little thing reveals the universe. Educated persons see things whole.

No branch of genuine knowledge is intrinsically more valuable than any

other branch. Knowledge of lasers is just as intrinsically valuable as knowledge of William Blake. But some kinds of knowledge are better suited to enhancing the whole of one's life than other kinds of knowledge. Although, as we have seen, we can objectively identify what belongs to the core of the various disciplines, the question of which disciplines belong to a core curriculum is more directly normative. All kinds of knowledge are intrinsically valuable and rewarding, but some kinds of knowledge are also instrumentally valuable for shaping our decisions about how to pursue aesthetic, moral, and intellectual goods. The subjects known as the humanities are especially valuable because they take as their subject matter the very question of the value of the range of human goods. The question of whether a life devoted to natural science is a good life is not a scientific question, but a humanistic one. Because the humanities alone raise the deepest questions about the value of all human pursuits, they have a special claim at the core of an education. Art, literature, history, religion, and philosophy are the primary modes of critical reflection upon the permanent themes of the human condition and of human nature. But the drama of human life also cannot be understood apart from the natural world that is its stage and setting. Today, rapid and disorienting technological change makes it imperative that all citizens have a basic understanding of the physical, chemical, and especially the biological sciences. Reflecting upon the rise of the new social and policy sciences, H.G. Wells predicted a century ago that statistics would become a basic form of literacy in future schools. Indeed, without a basic knowledge of government, economics, and statistics, a person cannot even hope to understand a newspaper, let alone aspire to be an informed citizen.

The ideal of an education for life will shape not only which disciplines belong to the core of the curriculum, but also the pedagogy appropriate for that core. A curriculum is to pedagogy what anatomy is to physiology. The curriculum lays out the basic organs and structure of knowledge but only good pedagogy can animate those organs into a vital whole. If our core is a preparation not just for advanced study but for life, then the core must be taught in a way that honors the integrity of a whole life. The pursuit of knowledge must be compartmentalized but not the living of life. A life involves not just knowledge, but beauty and goodness as well; life involves not just the intellect, but equally the passions. In Whitehead's classic terms, every core course must first entice us with the romance of adventure into a new domain of knowledge, then discipline us through the hard work of precise mastery of key concepts and texts, and finally delight us with the insights of imaginative generalization, in which we can see analogies between disciplines and glimpse the deeper unity of knowledge. A good core curriculum animated by fine pedagogy will lead us to appreciate the beauty of Newtonian physics, the wonder of biology, the drama of moral goodness and evil in history, the mathematics of music, the logic of art, and the grammar of philosophy.

How Colleges Might Honor the Core Curriculum

There are reasons for thinking that many, if not most, college students are not acquiring the core courses they need. In April of 2004, the American Council of Trustees and Alumni released a major study of the general education requirements at 50 leading American colleges and universities titled "The Hollow Core: Failure of the General Education Curriculum." They found that, although most schools claimed to foster a solid and comprehensive general education, almost none required a full set of core courses. National surveys of college graduates reveal huge gaps in the kinds of basic knowledge of science and of history essential to anyone aspiring to be an effective professional or citizen. Major American corporations and the armed services spend hundreds of millions of dollars every year in remedial basic education for employees and recruits who are college graduates.² More important, these gaps in basic knowledge impede lifelong learning and impoverish the adult lives of our students. Nothing is more common than for adults to lament their choices of courses in college and to complain that college, like youth itself, is wasted on the young. If I had known then what I know now . . .

Surveys of Ivy League students reveal deep dissatisfaction with the way students are advised in course selection.³ And no wonder. Our students are expected to choose their 36 courses out of more than a thousand possibilities, subject only to very broad distributional requirements and the requirements of a major. If students could make wise choices about their college curriculum, they would not need a college education. Many students only discover what they really want to study by the end of their college years. Because distributional requirements can be satisfied by an immense range of courses, both foundational and peripheral, students typically end up with major gaps in basic knowledge. A core curriculum in the first year or two of college, by providing all students with a basic map of the main intellectual territory, empowers students to make informed choices as they navigate the immense range of human knowledge. We seek to prepare students for autonomy and freedom, but autonomy and freedom are the fruits of sound knowledge and mature judgment. The paradox of education is that we must submit to certain kinds of discipline before we can be free: a core curriculum provides the essential discipline for intellectual freedom.

The first step a college might take, then, would be to identify those of its offerings that plausibly constitute a core curriculum. Not all of the core curriculum need be done in college: by means of more rigorous entrance requirements, colleges can push high schools to provide much more comprehensive surveys of basic knowledge. In this way, college cores can emphasize a more reflective and critical approach to the fundamentals of the disciplines. Second, a college could provide better and more directive counseling to students, strongly encouraging them to complete the core curriculum within their first two years, before they focus upon their major and minor subjects.

Third, a college could offer an optional core curriculum, either a partial core or a complete core. Yale, for example, offers an optional partial core in philosophy, politics, and literature in its Directed Studies Program for the first year of college; Dartmouth offers an optional partial core in its Humanities sequence. Finally, and most comprehensively, a college can require students to complete a full core curriculum within the first two years of college, as does (or did) the University of Chicago.

The Core of a College Community

The Harvard philosopher George Santayana was asked what college students should study. He said: "It doesn't matter, so long as they all study the same thing." Our current curricular principles and practice take no notice of the immense rewards of shared intellectual endeavor, of a common intellectual life among our students. Soldiers develop deep bonds from shared boot camp, lawyers and doctors from shared professional training, but our students can spend four years in college without sharing a single common intellectual adventure. No doubt, students all share other features of college life together, but they share no common intellectual experience, no common initiation into the demands and delights of learning the same things. What kinds of bonds might every class of college students form if all studied, discussed, debated, and griped about the same ideas together? A common curriculum turns the whole campus into one great seminar, in which each of us benefits from the insights of our classmates. What kind of community would emerge from such a common educational endeavor? We talk a great deal about our college communities, yet fail to provide a curricular basis for a real intellectual community. For a community of teachers and learners, that is a tragedy.

Of course, it does matter what our students study in common. True, a common curriculum has distinctive rewards no matter what its content and a core curriculum is valuable even where it is not common, but a common curriculum makes most sense if it is also a core curriculum.

Notes

1. <http://www.goacta.org/publications/Reports/HollowCoreWeb.pdf>.
2. For evidence, see the report "Becoming an Educated Person: Toward a Core Curriculum for College Students" of The American Council of Trustees and Alumni (July 2003).
3. See <http://www.thedartmouth.com/article.php?aid=2004032901050>