

MAKING THE CASE

Professional education for the world of practice

BY DAVID A. GARVIN

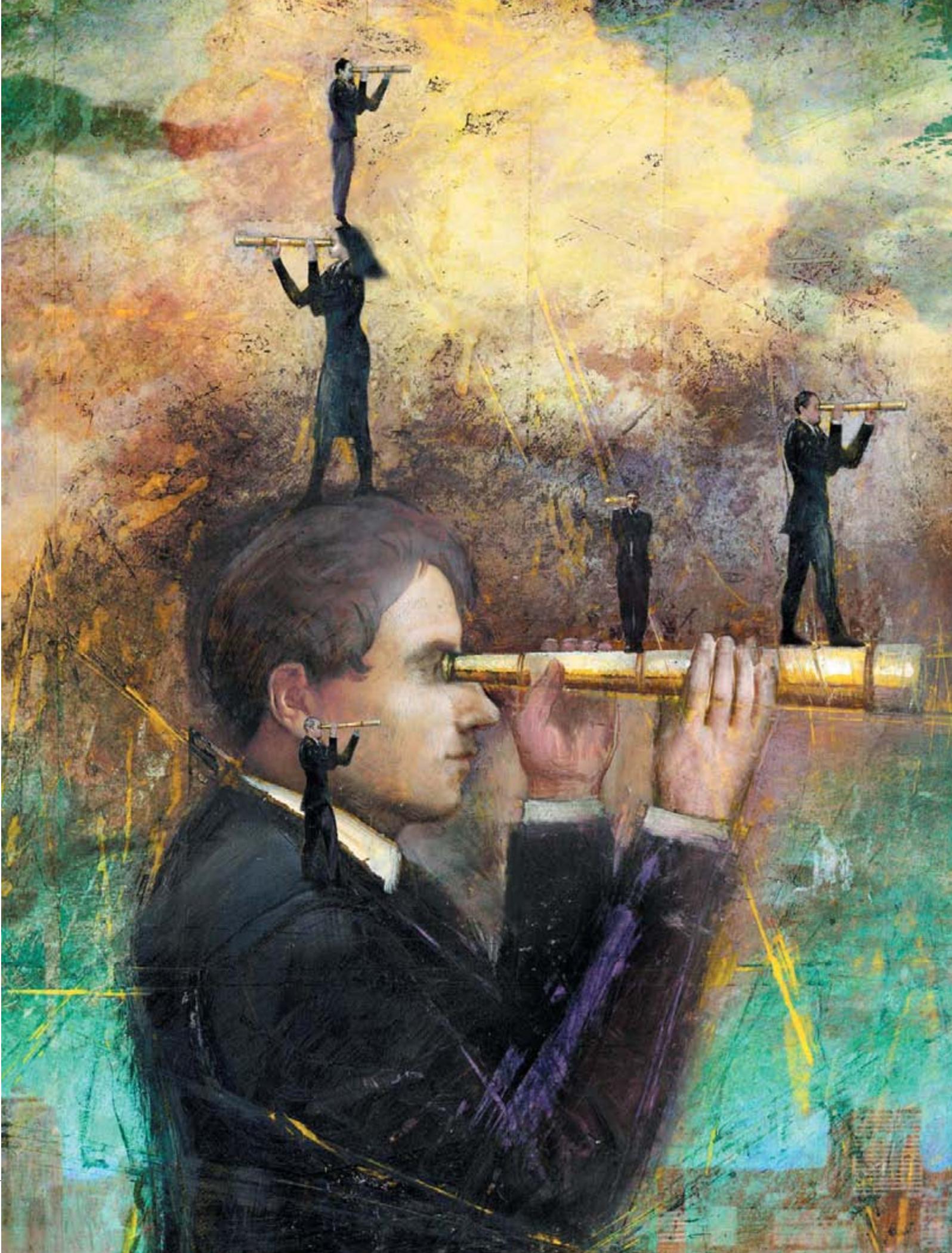
ALL PROFESSIONAL SCHOOLS face the same difficult challenge: how to prepare students for the world of practice. Time in the classroom must somehow translate directly into real-world activity: how to diagnose, decide, and act. A surprisingly wide range of professional schools, including Harvard's law, business, and medical schools, have concluded that the best way to teach these skills is by the case method.

The Law School led the way. A newly appointed dean began to teach with cases in 1870, reversing a long history of lecture and drill. He viewed law as a science and appellate court decisions as the "specimens" from which general principles should be induced, and he assembled a representative set of court decisions to create the first legal casebook. To ensure that class time was used productively, he introduced the question-and-answer format now called the Socratic method.

The Business School followed 50 years later. Founded in 1908, it did not adopt cases until 1920, when its second dean, a Law School graduate, championed their use. After convincing a marketing professor to create the first business casebook, he then provided funding for a broader program of casewriting, built around real business issues and yet-to-be-made decisions. That program produced cases in multiple fields and their use in virtually all courses by the end of the decade.

The Medical School began using cases only in 1985. All were designed to cement students' understanding of basic science by linking it immediately to practical problems—typically, the case histories of individual patients. These cases formed the foundation of the school's revolutionary "New Pathway" curriculum that shifted students' pre-clinical years away from lectures toward tutorials and active learning.

In each of these professions, Harvard faculty became evangelists for the case method, spreading this educational innovation around the world. Now, through close study of case-method teaching in law, business, and medicine at Harvard, we can see how the technique has been adapted for use in distinct disciplines—and how it might evolve, and be modified, to better meet the needs of twenty-first-century students and teachers.



LEARNING TO THINK LIKE A LAWYER

CHRISTOPHER COLUMBUS LANGDELL, the pioneer of the case method, attended Harvard Law School from 1851 to 1854—twice the usual term of study. He spent his extra time as a research assistant and librarian, holed up in the school's library reading legal decisions and developing an encyclopedic knowledge of court cases. Langdell's career as a trial lawyer was undistinguished; his primary skill was researching and writing briefs. In 1870, Harvard president Charles William Eliot appointed Langdell, who had impressed him during a chance meeting when they were both students, as professor and then dean of the law school. Langdell immediately set about developing the case method.

At the time, law was taught by the Dwight Method, a combination of lecture, recitation, and drill named after a professor at Columbia. Students prepared for class by reading "treatises," dense textbooks that interpreted the law and summarized the best thinking in the field. They were then tested—orally and in front of their peers—on their level of memorization and recall. Much of the real learning came later, during apprenticeships and on-the-job instruction.

Langdell's approach was completely different. In his course on contracts, he insisted that students read only original sources—cases—and draw their own conclusions. To assist them, he assembled a set of cases and published them, with only a brief two-page introduction.

Langdell's approach was much influenced by the then-prevailing inductive empiricism. He believed that lawyers, like scientists, worked with a deep understanding of a few core theories or principles; that understanding, in turn, was best developed via induction from a review of those appellate court decisions in which the principles first took tangible form. State laws might vary, but as long as lawyers understood the principles on which they were based, they should be able to practice anywhere. In Langdell's words: "To have a mastery of these [principles or doctrines] as to be able to apply them with consistent facility and certainty to the ever-tangled skein of human affairs, is what constitutes a true lawyer..."¹

This view of the law shifted the locus of learning from law offices to the library. Craft skills and hands-on experience were far less important than a mastery of principles—the basis for deep, theoretical understanding. Of the library, Langdell observed, "It is to us all that the laboratories of the university are to the chemists and the physicists, the museum of natural history to the zoologists, the botanical garden to the botanists."²

And because "what qualifies a person...to teach law is not experience in

the work of a lawyer's office...not experience in the trial or argument of cases...but experience in learning law," instruction was best left to scholars in law schools.³

This view of the law also required a new approach to pedagogy. Inducing general principles from a small selection of cases was a challenging task, and students were unlikely to succeed without help. To guide them, Langdell developed through trial and error what is now called the Socratic method: an interrogatory style in which instructors question students closely about the facts of the case, the points at issue, judicial reasoning, underlying doctrines and principles, and comparisons with other cases. Students prepare for class knowing that they will have to do more than simply parrot back material they have memorized from lectures or textbooks; they will have to present their own interpretations and analysis, and face detailed follow-up questions from the instructor.

Langdell's innovations initially met with enormous resistance. Many students were outraged. During the first three years of his administration, as word spread of Harvard's new approach to legal education, enrollment at the school dropped from 165 to 117 students, leading Boston University to start a law school of its own. Alumni were in open revolt.

With Eliot's backing, Langdell endured, remaining dean until 1895. By that time, the case method was firmly established at Harvard and six other law schools. Only in the late 1890s and early 1900s, as Chicago, Columbia, Yale, and other elite law schools warmed to the case method—and as Louis Brandeis and other successful Langdell students began to speak glowingly of their law-school experiences—did it diffuse more widely. By 1920, the case method had become the dominant form of legal education. It remains so today.

Of course, there are modern-day refinements. Most instructors assign multiple cases for class, typically selected because they appear to conflict with each other and require subtle, textured interpretation. Langdell's approach, says professor of law Martha L. Minow, "has been turned on its head." Whereas Langdell believed that cases not readily conforming to doctrine, or allowing for conflicting interpretations, were wrongly decided and not deserving of study, law-school faculty today believe that *these* are precisely the cases that warrant the most attention—because, Minow says, "We have conflicting principles and are committed to opposing values. Students have to develop some degree of comfort with ambiguity."

But preparation is little changed. There are, a second-year student observed, only a few "standard moves" among instructors. Students prepare—with little or no collaboration—with these moves in mind. Detailed questions are seldom assigned. Most professors expect students to be able to discuss each case's facts, is-



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suces, arguments, and holdings; they are especially interested in minimal and maximal interpretations of the associated doctrine and comparisons with holdings in other assigned cases. This is called “briefing the case”—in many ways the core skill in learning to think like a lawyer.

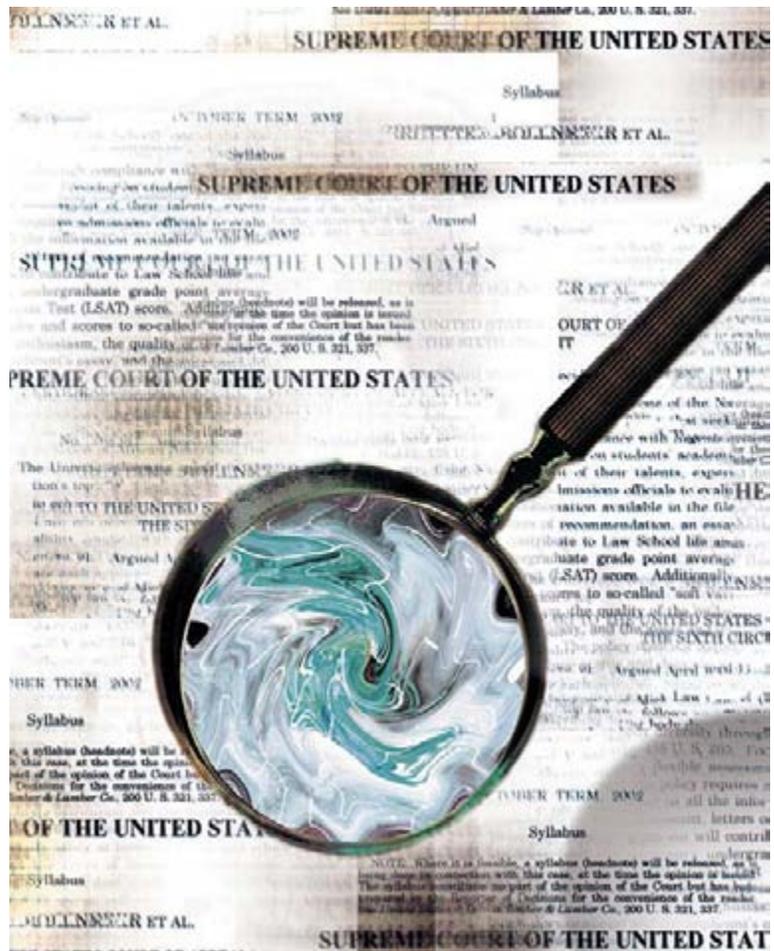
Professors prepare for class in much the same way. They, too, brief the case; like their students, they prepare largely without the support of others. But they also come armed with questions. Most pay special attention to “hypotheticals”—one or more questions that involve made-up situations or that slightly change the facts or issues in a case and so raise deeper, more fundamental tensions. “Suppose Mr. Jones’s home was located by the ocean, rather than along the highway. Would that change the applicable zoning laws?” “Suppose Mrs. Smith had no surviving relatives. Would her will still be valid?” There is an art to framing thoughtful, stimulating hypotheticals—the late Langdell professor of law Phillip E. Areeda argued that “the ideal hypothetical is one line long, often focusing on a single, easily stated fact.”⁴

Most classes begin with a “cold call.” The professor turns at random to a student and asks her to state the facts or issues in the case. There is then considerable back and forth, with the opening student and others, as the professor follows up and guides the discussion by asking a series of narrow, tightly focused questions. These questions lie at the heart of Socratic teaching. Often, responses require a very close reading of the case.

This entire process puts the instructor front and center. It is very much hub-and-spoke: the professor exercises a firm, controlling hand and virtually all dialogue includes her. There are few student-to-student interchanges. Eventually, the questions cease and the instructor brings class to an end, but seldom with a conventional summary. There is limited closure and little attempt to tie up loose ends: most summaries have a strong dose of “on the one hand, on the other hand.” Students often leave class puzzled or irritated, uncertain of exactly what broad lessons they have learned.

And that is precisely the point. Learning to think like a lawyer means understanding and accepting the importance of small differences. Decisions often turn on matters of seemingly insignificant detail. Precedents may or may not apply in this particular set of circumstances. Doctrines and rules are seldom unequivocal or easy to apply.

Legal scholar Edward H. Levi, the late U.S. Attorney General and president of the University of Chicago, long ago observed that “the basic pattern of legal reasoning is reasoning by example...the finding of similarity or difference is the key step in the legal process.”⁵ But because not all examples or differences are relevant, lawyers must learn to distinguish appropriate from inappropriate analogies. The hallmark of a good lawyer, says Gottlieb professor of law Elizabeth Warren, is “the ability to make fine discriminations, to think of two things that are closely interconnected but keep them separate from one another.” And, equally important, to be capable of putting those differences into words: Byrne professor of administrative law Todd D. Rakoff, dean of the school’s J.D. program, says, “We are trying to teach a public language.” The ability to frame an argument or take a position is an essential legal skill. For litigators, the stakes are espe-



cially high, since they must be able to respond on their feet and under fire when judges ask for further explanation or analysis.

How are these habits of mind best developed? The answer, most law professors agree, is through a combination of tough, relentless questioning by instructors and the careful study of “boundary problems...[that] involve a clash of principles in which as much, or nearly as much, may be said on one side or the other,” in the words of Anthony T. Kronman, the dean of Yale Law School.⁶ Easy cases teach students far less than complicated decisions, where distinctions are murky and lines are hard to draw. Warren says, “You know the difference between daylight and dark? Well, we spend all of our time at the Law School on dawn and dusk.”

Because this approach emphasizes legal process and judicial reasoning, it prepares students to deal with the unknown, to engage emerging legal questions and apply their skills in changing or unforeseen circumstances. Still, the Socratic method of teaching is all too easily abused. Typically, students show their displeasure by rationing their participation or staying silent. (There is little penalty, since grades depend on anonymous final examinations, not class participation.) In many classes, only a few “gunners”—those who aggressively seek to ingratiate themselves with faculty and speak on every possible occasion—are steady, reliable contributors.

A second concern is that the method does not teach the full complement of legal skills. Visiting professor of law Michael Meltsner, director of the school’s First Year Lawyering Program, says that the case method “does what it does very well. But what



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it does is narrow.” The focus is on preparing students for litigation. Law is viewed as a public contest with winners and losers, and students are trained “more for conflict than the gentler arts of reconciliation and accommodation,” as former law-school dean and Harvard president Derek Bok wrote 20 years ago.⁷ But most lawyers put a premium on negotiating, interviewing, and counseling skills. Others require the ability to develop options or strategies. Even litigators must first engage in fact-finding. Because these skills are not well taught by the current version of the case method, many schools have developed separate, freestanding “lawyering” courses and legal clinics. And that raises perhaps the deepest concern. As a second-year student put it: “If you can ‘think’ like a lawyer, does that mean you can ‘act’ like a lawyer?”⁸

DEVELOPING THE COURAGE TO ACT

AFTER HARVARD BUSINESS SCHOOL was founded in 1908, Edwin F. Gay, its first dean, wrote in the inaugural catalog that professors would employ “an analogous method [to the ‘case method’ used at the Law School], emphasizing classroom discussion, supplemented by lectures and frequent reports, which may be called the *problem* method.”⁹ The reality, however, was quite different. In the early years, courses were general and descriptive (“Economic Resources of the United States,” “Railroad Organization and Finance”) and taught primarily through lectures from the economist’s point of view.

The situation remained largely unchanged until the appointment in 1919 of a new dean, Wallace P. Donham, a graduate of Harvard Law School who later practiced law and had taught corporate finance at the business school. His background led him to see strong parallels between the two professions. In a 1922 article, he observed that the use of cases in law schools was made possible by “the vast number of published decisions, the thorough classification of the subject [by instructors], published case books, the elements in the typical law case, and the development of general principles from the discussion of individual cases. Of these elements, all, with the exception of the reported cases themselves, exist or may be supplied for teaching business.”¹⁰

Business-school faculty therefore needed to develop cases of their own. But Donham recognized that these cases would have to be different from legal cases. For businessmen, the primary tasks were making and implementing decisions, often in the face of considerable uncertainty. In keeping with the then-prevailing philosophy of pragmatism, cases should describe real problems and students should be able to practice sizing up situations and

deciding on appropriate action. For this reason, he said, a business case “contains no statement of the decision reached by the businessman...and generally business cases admit of more than one solution...[they] include both relevant and irrelevant material, in order that the student may obtain practice in selecting the facts that apply.”¹¹ Much less time and attention would be devoted to underlying theories or principles, since in business “practices and precedents have no weight of authority.”¹² The particulars of each business situation were paramount; they had to be understood and analyzed in detail.

With these ideas in mind, Donham moved quickly on several fronts. He persuaded Melvin Copeland, a noted marketing professor, to change his planned textbook to a collection of business “problems.” Published in September 1920, it became the first business casebook. Donham also orchestrated a series of informal faculty discussions about the school’s methods of instruction. These meetings led to a broad commitment to case-method teaching and, in 1921, a formal faculty vote that officially changed the name of the school’s approach from the “problem method” to the “case method.” Most important, Donham established and funded the Bureau of Business Research, a dedicated group of scholars under Copeland’s direction that, from 1920 to 1925, developed and wrote cases for multiple courses. (Once a critical mass of materials was developed, Donham disbanded the bureau and insisted that the faculty as a whole assume responsibility for developing cases.)

Within the business school, cases had become the dominant mode of instruction by the mid 1930s, and acceptance was equally swift outside. By 1922 casebooks had been adopted by 85 institutions. Harvard faculty members helped the dissemination process by publishing books on the case method in 1931, 1953, 1954, 1969, 1981, and 1991, and offering seminars and case-teaching workshops. The most visible was the Visiting Professors Case Method Program, funded by the Ford Foundation between 1955 and 1965, in which more than 200 faculty members from leading business schools spent entire summers at Harvard researching, writing, teaching, and improving a case of their own.¹³ Today, business schools around the globe teach by the case method.

Modern cases retain the same basic features described by Donham. Typically, they average 10 to 20 pages of text, with 5 to 10 additional pages of numerical exhibits. The best cases describe real, not fictitious, organizations and real business issues. “A good case,” Donham professor of organizational behavior emeritus Paul Lawrence noted years ago, is “the vehicle by which a chunk of reality is brought into the classroom to be worked over by the class and the instructor.”¹⁴ Most cases require students to assume the role of the protagonist and to make one or more critical decisions. The information is often deliberately incomplete, allowing for many possible options.

Students are normally assigned one case per class. Preparation is guided by assignment questions, which have become increas-

ingly detailed over time. Thirty years ago, the focus was on action, and virtually the only question was, “What should Mr. Smith do?” Today, as management has become more sophisticated, with a wider array of technical theories and tools, detailed analytical questions are the norm. Students still come to class with a recommended decision and implementation plan, but also with extensive supporting analysis. Because of the workload—most cases take at least two hours to read and prepare, and two to three classes are scheduled per day—students often form their own three- to four-person study groups to share ideas and divvy up responsibilities.

Instructors prepare much as students do. They too read and analyze the case and prepare answers to assignment questions. But they attend equally to orchestrating class discussion most effectively. In this, they have help. All instructors who teach first-year courses, a mix of newcomers and old hands, are organized into teaching groups—collections of five to nine faculty members, led by an experienced professor, who teach the same subject and use the same cases. These groups meet regularly to analyze the cases and discuss classroom management. Detailed teaching notes present both the required analysis and likely discussion dynamics; most teaching notes even contain “blackboard plans” showing the best way to organize students’ comments on the five blackboards in the typical business-school classroom.

Classes begin either with a “cold call,” as at the law school, or a “warm call,” in which a student is given notice a few minutes before class that he will be asked to speak. The opening question—usually one from the assignment—typically requires taking a position or making a recommendation. Since as much as 50 percent of their grade is based on class participation, most students come well prepared. The opening student normally talks for five to 10 minutes with occasional interruptions by the instructor. Once he is done, instructors typically throw the same issue or question back to the class for further discussion.

Throughout the class, a primary goal is to encourage student-to-student dialogue. For this reason, business-school professors tend to pose broad, open-ended questions far more than their law-school colleagues do, and to link students’ comments by highlighting points of agreement or disagreement. They also are more likely to seek commentary from experts: students whose backgrounds make them knowledgeable about a country, a company, or an issue. Instructors are also more likely to provide closure at the end of a class or unit, with a clear set of “takeaways.”

In most classes, debate revolves around a few central questions that prompt conflicting positions, perspectives, or points of view. “There’s got to be a plausible tension in the case,” says W. Carl Kester, chair of the M.B.A. program and Industrial Bank of Japan professor of finance. “It’s what allows me to build a debate and get the students to talk with one another.”

The best questions involve issues where much is at stake, and where the class is likely to divide along well-defined lines. At times, they bring a difficult choice to life: “This new business requires completely different marketing and manufacturing skills, even though the exact same customers will purchase the product. Do you want to set up an independent unit, or put the business within an already established division?” Questions like these force students to take a stand on divisive issues and try to convince their peers of the merits of their point of view.

That, of course, is how managers spend their time. They regularly size up ambiguous situations—emerging technologies, nascent markets, complex investments—and make hard choices, often under pressure, since delay frequently means loss of a competitive edge. They work collaboratively, since critical decisions usually involve diverse groups and departments. And they discuss their differences in meetings and other public forums.

Cases and case discussions thus serve three distinct roles. First, they help students develop diagnostic skills in a world where markets and technologies are constantly changing. “The purpose of business education,” a business-school professor noted more than 70 years ago, “is not to teach truths...but to teach men [and women] to think in the presence of new situations.”¹⁵ This requires a bifocal perspective: the ability to characterize quickly both the common and the distinctive elements of business problems.

Second, case discussions help students develop persuasive skills. Management is a social art; it requires working with and through others. The ability to tell a compelling story, to marshal evidence, and to craft persuasive arguments is essential to success. It is for this reason that the business school puts such a heavy premium on class participation. Beyond grading, students also receive regular feedback from professors about the quantity, quality, and constructiveness of their comments.

Third, and perhaps most important, a steady diet of cases leads to distinctive ways of thinking—and acting. “The case system,”





CHRISTOPHER LITTLE

Tosteson sought to connect science and medical practice.

business school alumnus Powell Niland, now of Washington University, has observed, “puts the student in the *habit* of making decisions.”¹⁶ Day after day, classes revolve around protagonists who face critical choices. Delay is seldom an option. Both faculty and students cite the

“bias for action” that results—what Fouraker professor of business administration Thomas Piper calls “courage to act under uncertainty.” That courage is essential for corporate leadership. “The businessman’s stock in trade,” wrote two long-time faculty members, the late Walmsley University Professor C. Roland Christensen and Abraham Zalesnik, now Matsushita professor of leadership emeritus, “is his willingness to take risks, to decide upon and implement action based on limited knowledge.”¹⁷ Cultivating these attitudes is the *raison d’être* of the case method.

But it also raises concerns. At times, courage is difficult to distinguish from foolhardiness. Competitive information may be un-

available; technologies may be underdeveloped; employees may be untrained or unprepared. Sometimes the wisest course of action is to wait and see.

The case method does little to cultivate caution. Decisiveness is rewarded, not inaction. Students can become trigger-happy as a result, committed “to taking action where action may not be justified or to force a solution where none is feasible.”¹⁸ Class discussions can easily polarize. Persuasiveness is valued—but not publicly changing one’s own mind. Few students do so in the course of discussion; if anything, positions tend to harden as debate continues. Skilled managers, by contrast, try to stay flexible, altering their positions as new evidence and arguments emerge.

Increasingly, the case method is being used to teach sophisticated techniques like valuation, forecasting, and competitive analysis. These techniques are essential to modern business literacy and are required for employment at investment banks, consulting firms, and large corporations. But they come with a price. “Too many of our cases,” says Kester, “are turning into glorified problem sets. They have a methodological line of attack and a single, preferred, right answer. They are exercises in applied analysis.” Diagnosis, decision-making, and implementation—the action skills the case method was originally designed for—receive much less time and attention. The challenge is com-

CASING THE FUTURE

FOR YEARS, the “technology” of cases remained static. They were written documents consisting of text, tables, and illustrations. Today, however, information and communication technologies are transforming cases—and with them, the processes of class preparation and discussion—in ways that produce greater realism, engagement, and interaction.

The business school has invested heavily in “multimedia” cases. Faculty members, working closely with information-technology experts, have produced approximately 35 to date, on subjects ranging from the choice of an advertising strategy for Mountain Dew to the launch of a new software product by Microsoft. In addition to text, these cases include videos, simulations, and animated exhibits, all available on-line and navigable in multiple ways. Judy Stahl, the school’s chief information officer, says, “Students love them because they’re different—even though they require more time to prepare.”

The school’s first multimedia case, “Pacific Dunlap,” developed in 1996, examines the challenges of running a textile factory in China; it includes a video tour of the manufacturing floor, video interviews with case protagonists, and an interactive spreadsheet that students use to explore possible changes in the production process. The most recent multimedia case, “Paul Levy: Taking Charge of the Beth Israel Deaconess Medical Center,” contains hours of video interviews with the hospital’s new CEO, recorded during his first six months as he led a turnaround of the hospital, which had been losing more than \$50 million annually. Every two to four weeks, Levy met with the casewriters and camera crew for lengthy question-and-answer sessions, thus diminishing the

usual problem of first-person narratives, which are infused with the wisdom of hindsight. He also provided excerpts from his daily calendar, selected e-mail correspondence, internal memoranda and reports, and news coverage, all of which are available through a single website. Students access these materials through a calendar of events that presents activities chronologically, as Levy worked through problems. The students can also follow his work by category—such as dealing with the board or formulating the recovery plan. And they can retrieve supplemental material on leadership style, managing diverse constituencies, and so on. (A brief video clip from the Levy case is available at www.harvard-magazine.com/on-line/03so/levy.html.)

Multimedia materials add richness and depth to cases, bringing students that much closer to reality. The medical school has carried the idea a step further, using technology to mimic real life. An experiment named ICON (“interactive case-based online network”) puts all case materials, research papers, and associated references on the Web for ready access and includes a module called “Virtual Contact” that allows students to interact directly with the protagonists in the case, who are played by medical-school faculty. Students pose questions, and the faculty members respond—true to form and wholly in character. A renowned specialist might curtly dismiss a naive question, while a family member might provide intimate details about a patient’s condition. Students in one tutorial were paged in the middle of class and told that their patient had been admitted unexpectedly to the emergency room at two the previous morning. How did they plan to respond?

Efforts like these bring students *into* the case problem, causing

pounded by the continued influx of Ph.D.s with backgrounds in economics, political science, psychology, and sociology into business-school teaching. That leaves some professors wondering: how do we continue to teach the art and craft of management?

FOSTERING A SPIRIT OF INQUIRY

FOR MOST OF THE TWENTIETH CENTURY, medical schools followed the model proposed by Abraham Flexner in a report to the Association of American Medical Colleges in 1910. The first two years of medical school were devoted to basic-science courses in biochemistry, anatomy, pharmacology, and other core disciplines. Most teaching was done in large lectures, and students were expected to memorize huge quantities of information. The following two years were devoted to clinical training—interactions with live patients in which students learned such skills as taking histories, conducting physical examinations, and making diagnoses. Most clinical training took place in small groups directly on the hospital floor. The preclinical and clinical years were largely separate.

For decades, critics complained about this approach, citing the tedium of the first two years, the force-feeding of material, the lack of connection between science and medical practice, and the weary, unhappy students who were the result. But despite repeated calls for action, there was little change.

When Daniel Tosteson, an alumnus, became dean of Harvard Medical School in 1977, he drew upon his prior experience as a

professor of cell biology and as dean (at Chicago) and immediately convened a series of faculty discussions, workshops, and symposiums aimed at reforming medical education. A 1979 workshop examined “What do we want Harvard Medical School graduates to know how to do, and how does the learning environment foster or hinder the achievement of these goals?” A 1980 symposium examined the problem of information overload: with more than 600,000 biomedical articles published each year, how could students, and physicians, keep current?¹⁹

These discussions resulted in a series of broad design principles and the commissioning of several planning groups, the first of which involved the Business School’s C. Roland Christensen, celebrated for his mastery of the case method and his case-teaching seminars. Additional case-method experience came from Gordon Moore, professor of ambulatory care and prevention, another medical-school graduate and also a recent graduate of the business school’s Advanced Management Program, who oversaw curriculum design and development. After pilot testing, the “New Pathway” was up and running in 1985. By 1992, it had become the school’s sole mode of instruction.²⁰

“Medicine,” Tosteson argued, was “a kind of problem solving,” and each medical encounter was “unique in a personal, social, and biologic sense.... All these aspects of uniqueness impose on both physician and patient the need to learn about the always new situation, to find the plan of action that is most likely to improve the health of that particular patient at that particular time.”²¹ Stu-

them to invest heavily in the outcome. For even greater realism, the medical school relies on Stan the man(nequin), a high-fidelity patient simulator. Stan is the ultimate in realistic cases: a life-size, computerized dummy with a heart that beats, lungs that breathe, pupils that dilate, and vital signs that are readily visible on nearby digital monitors. He has been programmed to experience a wide range of medical conditions, such as acute asthma attacks, renal failures, and congestive heart disease. On command, Stan’s breathing becomes labored, his pulse erratic; then, the monitors spring to life, with all the accompanying bells and whistles that indicate a real emergency. A voice transmitter, operated by a nurse or doctor in a back room, ensures that Stan airs his feelings personally.

Students respond as they would to a real patient: they check Stan’s blood pressure, administer drugs, insert breathing tubes, and give supplemental oxygen. The simulator then recovers (or dies) exactly as a patient would in real life—but with none of the risk. Many tutors now use Stan to supplement their written cases, providing students with a deeper, more experiential sense of the conditions they are studying. In the process, says James Gordon, director of the program on medical simulation, “They become emotionally attached, and learn at a different level.”

The law school has done the least to jazz up its curriculum with multimedia and simulation technologies. Appellate court decisions, after all, rely heavily on the written word. Instead, the school has used networks to improve connectivity, build community, and tighten the links between students and faculty. One tool is H₂O, created by the law school’s Berkman Center for Internet and Society, a polling and messaging system with the ability to swap comments among students. A professor might ask members of her class to take a position on a hypothetical law, for example: are they for it or against it, and for what reasons? Arguments

must be written up and submitted to the system. Then, at a pre-set time, H₂O randomly trades students’ comments: every student in favor of the law is sent an argument from a student who is opposed, and vice-versa. Students must then frame rebuttals to the arguments they have received.

This process gives students the opportunity to engage each other during the preparation process, building a more cohesive group. It enables them to practice legal writing, an essential lawyerly skill. And it provides instructors a better sense of the diversity of students’ opinions, as well as a preview of the most common and cogent arguments. Class time, says Jonathan Zittrain, Berkman assistant professor of entrepreneurial legal studies, is that much more productive: “I get to see where the fault lines are. Sometimes, it’s 90 percent for and 10 percent against, when I expected it to be completely different.”

In his course on “The Internet and Society,” held in one of the school’s wired classrooms, Zittrain uses the network to stimulate class participation. Students can contribute verbally or via the Internet. Rather than raising their hands, they can e-mail questions and comments to a teaching fellow sitting with an open computer at the front of class. Periodically, Zittrain turns to the teaching fellow and asks if anything interesting has come in; if so, those comments become fodder for discussion. Foreign students, in particular, find the opportunity to put their thoughts in writing helpful, as do those who are least comfortable speaking extemporaneously.

As these examples suggest, technology is slowly infusing the case method. Used wisely, it offers greater realism, a closer connection with the external world, and a heightened sense of community. But it is not a panacea. Technology can enhance and deepen cases, but only a skilled teacher can bring them to life.

dents needed to confront these problems from the start of their education, but without losing rigor. To that end, “the study of science and clinical medicine should be interwoven throughout the curriculum.” Students’ “active participation” was essential, and a “principal objective of medical schools should be to encourage each student to assume responsibility for his or her own learning.”²² Together, these principles shifted the center of gravity of medical education from a purely technical orientation toward the development of essential attitudes and skills. They also led the school to adopt the case method.

In the New Pathway, the entire curriculum is built around multi-week “blocks” of focused, related material. The first block, on the human body, covers anatomy, histology, and radiology and runs for eight weeks; the second block, on chemistry and biology of the cell, covers biochemistry and cell biology and runs for six weeks. During each period, students attend only one lecture per day, with lab sessions twice per week. A sequence of courses called “Patient-Doctor” spans the first three years; in them, students learn to interview patients, take a history, and conduct physical examinations.

The core of the program is the tutorial, an ungraded discussion group of six to eight students that meets three times per week to discuss cases developed especially for the New Pathway. Each case is a multipart series, keyed to a particular block of the program; their defining feature, says associate professor of pediatrics Elizabeth Armstrong, is that the story of a real patient is “progressively disclosed” in five or six short segments so that “students meet the patient much as they would in the real world.” Typically, the first segment describes the patient’s background and symptoms, the second describes the physical examination, and subsequent installments describe lab tests, the doctor’s diagnosis, the treatment, the patient’s response, and the long-term progression of the illness.

When a tutorial begins, the instructor hands out the case, and a student volunteers to read the first segment aloud. The group begins to look up unfamiliar terms, using medical dictionaries and reference books found in every tutorial room. Once they un-

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derstand the terminology, the students proceed to discuss what they know and don’t know about the case: what scientific knowledge might be brought to bear, what mechanisms might produce the patient’s condition, and what topics must be probed further. A patient with a hacking cough complains of chest pains; what does this suggest about possible connections between heart and lung functioning? Or how might a patient’s heavy doses of antibiotics be linked to her flu-like symptoms?

These discussions—free-form and largely student-directed—seldom generate answers. Instead, students jointly develop a “learning agenda” that will guide their independent study over the next two days. Together, they list those things they feel they need to know more about to fully understand the biological and clinical issues in the case; from this research agenda, they then self-select areas to pursue through individual reading. How do they choose?

According to one first-year student: “I chose the topics I feel uncomfortable with, the topics that I would not be prepared to discuss intelligently. I study what I don’t understand.”

And that, in the end, is the real goal of the New Pathway. The program is designed to “foster a true spirit of inquiry.”²³ Medicine is constantly changing. Doctors must learn how to learn, collaboratively and individually. According to Gordon Moore, “I want my students to be able to identify a gap in their knowledge, feel guilty about not filling it, and have the skills to learn what they need.” Tosteson adds, “They discover that choosing what to learn is the hard part; learning it is a lot easier.”

This discovery process lies at the heart of the medical school’s case method. The cycle of case presentation, identification of a learning agenda, and independent study is repeated as additional segments of a case unfold. Students share the findings from their reading and research, the tutor then hands out the next part of the story, and the process begins anew.

What role do tutors play in the process? Outside of class, they provide detailed feedback and evaluations to students about their contributions and participation. During tutorials, they speak infrequently—perhaps 5 to 10 percent of the time—and almost always ask short, focused questions. Unlike their counterparts at the law and business schools, they do not orchestrate or steer discussions. Most do little or nothing to kick-off class. Instead, faculty and students say, the best tutors subtly “nudge students in the right direction” by “massaging rather than managing the process.” Skilled tutors set the tone of discussion by asking reflective questions: “Are there any terms you don’t understand?” “Why do you think this might be happening?” They impose rigor by asking testing questions: “Are you sure about that?” “Is that something that might be worth checking?” Finally, they provide guidance and help by asking narrow, substantive questions: “You’ve talked about over-stimulation of the bone marrow. Do you have any idea how different the blood picture might be if the patient had an infection instead of leukemia?”

The latter role is by far the most difficult. Tutorials are designed to prompt self-directed student learning. Too much fac-

ulty guidance and students become passive; too little and they become confused. A first-year student says, “Sometimes, I have the feeling that we are wandering around in a dark tunnel. We’re trying door after door with no luck. The best tutors shine a little light from under one door and show us the way.”

This entire process goes by the name of “problem-based learning.”²⁴ It was first developed by a small number of pioneering medical schools, notably McMaster University in Canada, in the 1960s and 1970s. Cases are springboards for self-study, not documents prepared in advance of discussion. Because the problem is presented *before* students have learned all of the associated scientific or clinical concepts, cases serve as catalysts for learning, not as the primary content.

The goal is still to ensure that students master the underlying science, but do so in ways that lead to deeper understanding and

improved retention. The method draws heavily on the findings of modern cognitive science: learning and retention improve markedly when students are motivated, when prior knowledge is activated by specific cues, and when new knowledge is linked to a specific context.²⁵ Vivid, evocative cases featuring patients and their illnesses serve these purposes admirably.

They also lead to a more cooperative spirit, which is essential to modern team-based medicine. Students in tutorials are forced to listen carefully and work together closely because their independent reading leads them in different directions. As one student put it, “In a traditional curriculum, you hope your classmates *don’t* study, so you can appear brilliant; in the New Pathway, you hope your classmates *do* study, because we learn from each other.”²⁶ Only by pooling their findings can the students fully explain the phenomenon being studied.

But the method has its detractors. The biggest problems are accountability and rigor. When students are unmotivated or tutors are unskilled, participation can quickly evaporate. Faltering discussions lead nowhere and are difficult to redirect. Because tutorials are ungraded and tutors are discouraged from taking students through the preferred reasoning process, there is little they can do to command involvement or attention, or to ensure disciplined, efficient analysis.

Still, many medical schools are moving rapidly in Harvard’s direction, even if few have made the same curriculum-wide commitment to cases. (In part, the reason is cost. Because discussion groups are so small, staffing is an issue. Harvard, with 165 students per class, requires 300 tutors to lead the tutorials in the first two years of its program.)

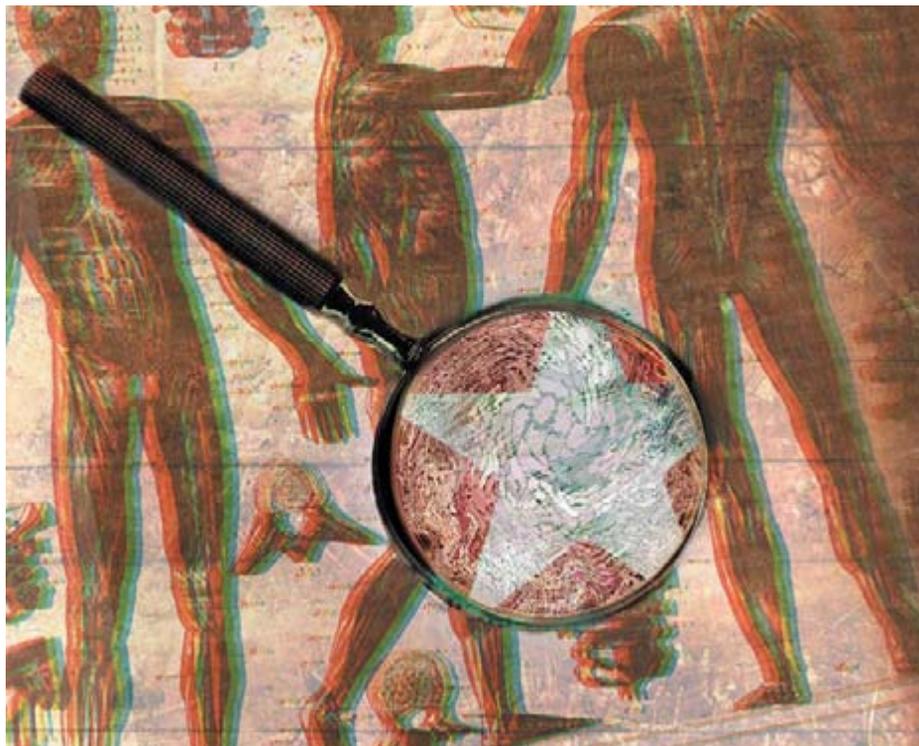
Moreover, the superiority of this approach is not yet fully documented. Careful studies comparing the performance of the pilot group of New Pathway students—who were randomly selected and could thus be compared scientifically with their traditionally taught peers—found comparable scores on board certification tests. There were no significant differences in biomedical knowledge, and New Pathway graduates reported being more committed to careers in primary care and psychiatry, more comfortable interpersonally, more competent dealing with psychosocial issues, and more likely to display humanistic attitudes.²⁷ But studies of problem-based learning at other medical schools have shown some fall-off in performance on basic science examinations, despite high levels of student and faculty satisfaction and equal or better performance on clinical examinations.²⁸

BROADENING THE PORTFOLIO

THE CASE METHOD IS NOW FIRMLY ESTABLISHED at Harvard’s law, business, and medical schools. Each school has tailored the method to its own ends, focusing on distinctive aptitudes and skills. Each has selected a different center of gravity—diagnosis or decision making, competition or collaboration, analytical pre-

cision or courageous action. Each has also recognized the limitations of its chosen approach and begun to explore alternatives.

At the law school, a dozen junior and senior faculty members have been meeting for nearly a year in a teaching workshop, formed originally to deal with issues of diversity and race. The group soon broadened its agenda to include other pedagogical issues: how faculty members approach their teaching, how their approach compares with those at the business and medical schools, how they could better engage and stimulate students. A few participants videotaped their classes and then presented



them for collective discussion. Teaching practice became a topic of shared intellectual interest—routine for business and medical school faculty members, but a rarity for law professors. According to a participant, “We learned that teaching is a collaborative enterprise, and that a culture of talking about teaching is incredibly invigorating. We all became more experimental and made major changes in our teaching.” The group is now sharing its observations with faculty colleagues and the new dean (who is interested in curricular reform; see page 74) in the hope of stimulating further change.

At the business school, a faculty committee recently explored the possibility of adding small-group discussions to the core curriculum. Those groups would still be rather large—the cutoff was set at 25 students—but the goal is to foster new behaviors, encouraging students to work together more closely than in their typical 80- to 100-person classes. The M.B.A. program’s Carl Kester notes the obvious parallels to the New Pathway: “I’m particularly interested in the medical-school model and how it might be adopted here in a small-group setting. I’d like to see our students working together more collaboratively, focusing on diagnosis, data collection, and problem identification by asking, ‘What information do we need, and how should we go about getting it?’” In Kester’s view, “Students need something more open-ended at the beginning. They need to learn (please turn to page 107)

MAKING THE CASE

(continued from page 65)

how to tackle a problem strategically and technically” before they encounter detailed, structured, analytical assignments.

The medical school has been moving on two fronts: adding more structure to tutorials, and reexamining the process of clinical education (the latter initiative prompted by the changing economics of healthcare and the difficulty of finding hospital-based instructors for clinical rotations, not by concerns about pedagogy). Faculty members have long known that tutorials lose steam in their second year as the process becomes repetitive, students master the mechanics, and become bored. Changes “that add complexity and are developmentally appropriate,” as professor of medicine and of biological chemistry and molecular pharmacology David Golan puts it, are underway, at least experimentally. In one, students are assigned multiple cases simultaneously; they share responsibilities much as a ward team would. In another, students are assigned different medical roles for each case and then respond according to their specialties; they trade roles as the tutorial progresses. In a third, based on discussions with business-school faculty, cases take on a decision-making focus, requiring students to move beyond diagnosis to debates about difficult medical choices.

With these innovations, the boundaries among the three case methods have started to fall. Each school is beginning to broaden its pedagogical portfolio, learning from, and borrowing from, the others. Much as the College is overhauling the undergraduate curriculum, the law, business, and medical schools are moving in their own ways to better prepare their students for the demands of twenty-first-century professional practice. ▽

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⁸ Elizabeth Wilson, “Learning to Be a Lawyer,” *Knowledge Directions*, Fall/Winter 2001, p. 78.

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¹⁰ Wallace B. Donham, “Business Teaching by the Case System,” in Cecil B. Fraser, ed., *The Case Method of Instruction* (New York: McGraw-Hill, 1931), pp. 15-16. Originally published in the *American Economic Review*, vol. 12 (1922).

¹¹ *Ibid.*, pp. 19, 22.

¹² *Ibid.*, p. 20.

¹³ The program brought together 11 groups of 20 professors and deans each, one group per summer.

¹⁴ Paul R. Lawrence, “The Preparation of Case Material,” in Kenneth R. Andrews, ed., *The Case Method of Teaching Human Relations and Administration* (Cambridge: Harvard University Press, 1953), p. 215.

¹⁵ Arthur Dewing, “An Introduction to the Use of Cases,” in Fraser, *The Case Method of Instruction*, p. 7.

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¹⁹ G. Octo Barnett et al., “Information Technology,” in Daniel C. Tosteson, S. James Adelstein, and Susan T. Carver, eds., *New Pathways to Medical Education* (Cambridge: Harvard University Press, 1994), p. 100.

²⁰ The New Pathway involves all medical and dental students, but not students in the joint Harvard-MIT program in Health Science and Technology.

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²² Daniel C. Tosteson, “New Pathways in Medical Education,” *New England Journal of Medicine*, vol. 322, no. 4 (January 25, 1990), pp. 235, 236.

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