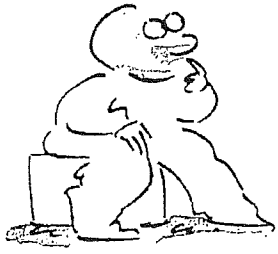
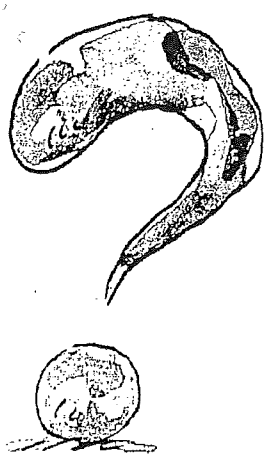
Secrets of the Super-Learners

by CRAIG LAMBERT

Good teachers talk about what makes for good learning.





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In 1876, at age 29, Alexander Graham Bell patented his invention of the telephone. Few realize, however, that Bell's research into sound transmission began with his work on teaching speech to the deaf—in 1872 he had opened a school for deaf students in Boston. Bell took a role in the life of Helen Keller '04, a girl whose illness at nineteen months left her blind, deaf, and mute, and whose story eventually became the subject of the 1962 film *The Miracle Worker.*

Helen Keller's sensory deficits had profoundly isolated her in a dark, silent space. But in 1887, her father brought the six-year-old girl from Alabama to Washington, D.C., where she met with Bell, who knew of a case similar to hers and saw the potential in Keller. Bell referred the Kellers to the director of the Perkins Institute for the Blind in Boston, who in turn introduced Keller to teacher Annie Sullivan. The girl made her key breakthrough into language when Sullivan, using tactile signals, eventually taught her the word *water.* Only three months later, she was writing letters.

Keller's experience hints at the amazing capacity of the human mind to learn. No one ever fully taps their learning potential, either in school or at work. But a few high-performance learners like Alexander Graham Bell and Helen Keller seem to come closer than most of us. What are the secrets of the super-learners?

Wonder. "We know who the best learners are," says Baird professor of science Dudley Herschbach, a bit of a super-learner himself with a Nobel Prize in chemistry to his credit. "Little kids! Nobody comes anywhere near them. They learn language, the most complicated thing there is, from scratch." According to Herschbach, Lewis Carroll, the author of *Alice in Wonderland*, best explained children's prodigious learning abilities when he described Alice as having "a pure unclouded brow and dreaming eyes of wonder." That phrase embodies "the ideal attitude for a scientist, or for anyone seeking discovery," says Herschbach.

David Riesman, Ford professor of the social sciences emeritus, says that "the quality I value in a student is curiosity." This trait, he says, links with "the capacity to be grabbed by something and really want to pursue it. That is central, and not as common as one would hope."

What often impedes curiosity, says Riesman, is "the hypersophistication that many students now bring to college with them. It's a shell you often see around students from bicoastal, cosmopolitan America. One factor is the media glut. Another is the abundance of sexual experience in early adolescence: there are no mysteries, no secrets left. They have read all the novels—or read about them—and seen all the dirty movies. It seals these students off from the needed naïveté."

Humility. The humility that facilitates learning may take the form of a simple open, questioning attitude. "One primary trouble with the American educational system is its concern with answers, as opposed to giving students questions," says C. Roland Christensen, Walmsley University Professor at Harvard. Lecturer on education Catherine Krupnick points out that the capacity to admit one's ignorance opens doors. "It's being willing to acknowledge that you don't know where the moon is on a given night, or how to demonstrate that the world is round," she says. "And not minding that you don't know. That's a wonderful start."

Professor of government Jorge Dominguez adds that "the student who is a better learner will have a clearer sense of his or her own weaknesses." He illustrates this point by comparing two Harvard seniors whose theses he advised. "One was a bright, cheery, thoughtful young man, the kind you want your

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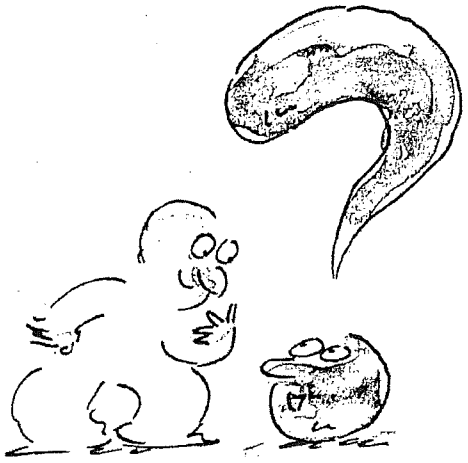
daughter to marry," says Dominguez. "He was a lot of fun and could talk about anything from international politics to music on the Esplanade. But because he was so good at so many things, he was terrible at organizing his time. He gave himself very little time to write his thesis and there was only a short interval for me to comment on it. The outcome was a piece of work that needed editing and felt 'rushed,' as one reader said. I agreed.

"The other student was severely dyslexic; in his early drafts you sometimes didn't know why one sentence followed the one before it. But he knew he was dyslexic and would need lots of lead time to write a draft, to be criticized, to rewrite, be criticized again, and so on. He organized his senior year around that, and wrote a strong thesis."

James Wilkinson, director of the Derek Bok Center for Teaching and Learning, says that "good learners know what it is that they don't know, and can ask questions about it." He cites a study by associate dean for program development Constance Buchanan, who interviewed a number of academic underachievers at Harvard—students whose scholastic performance was significantly lower than predicted. "Often, they weren't able to formulate questions about things that confused them," says Wilkinson. "People who are really in trouble in a course sometimes don't even know they are in trouble." For those caught in such a bind, Wilkinson encourages the development of self-diagnostic skills to identify specific areas of bewilderment, along with resolute attempts to describe and define one's confusion for others.

In regard to such conversations, Dominguez notes that "a great many Harvard students complain about uneven or inadequate faculty advising, but what is rarely remarked upon is that many undergraduates are highly resistant to advice. This may be a common problem among very bright people who are perhaps too confident of their abilities. Taking advice requires a bit of humility."

In one of his courses, for example, Dominguez begins by telling the class that "in the last couple of minutes of each lecture, I'll summarize its main point. I will clue you in to the summary with a phrase such as, 'In conclusion . . . .' Don't close your notebooks at that point, because the following ninety seconds are likely to be the most valuable part of the hour." Despite this explicit advice, Dominguez has repeatedly found that throughout the semester, as soon as he utters the words, 'In conclusion,' many students snap their notebooks shut and head off to lunch. "It's just stunning," he says.



Synthetic thinking. Super-learners aren't passive; they don't simply absorb information but actively reconstitute it into meaningful patterns. In so doing, they seek out the key concepts underlying a marketing strategy, an engineering approach, a lab experiment, or a novel. "Good learners can see the difference between relevant information and irrelevant information," says Starch professor of psychology Jerome Kagan. "They can distinguish the figure from the ground, the wheat from the chaff."

Preceptor in mathematics Robin Gottlieb adds that such students "know how to change focus—going from the big issues to the details, then back to the big picture. They are trying to actively synthesize the material. They use assignments as a vehicle to help put ideas together, rather than seeing the completion of a task—such as a problem set—as the final goal."

In contrast, less successful students "would like to have a recipe," she says. "They might do a problem set by mimicking problems they have already solved, and feel satisfied knowing that the assignment is done. That contrasts with the attitude that asks, 'What's the point of this problem set? Can I use this in any creative way?' " Gregory Nagy, Jones professor of classical Greek literature, adds, "I look for a student who doesn't treat what is being taught as 'material.' Someone who is eager to learn to think in ways they haven't thought before."

Excellent learners, according to Wilkinson, "know when they know something. They ask why as well as what, and as a result they can apply what they learn to a novel situation outside the classroom—which, after all, is an artificial environment. They can take the French they've learned and ask directions to Notre Dame, or apply physics to predicting the trajectory of a bouncing tennis ball. Good learners know when they've gotten to that point of understanding, and won't stop short of it."

In addition, Wilkinson describes top learners as people who "have some idea that the course makes sense, who are good at figuring out the overall plan and picking up on what's required of them. They do a kind of triage and focus attention on the things that matter." Wilkinson recalls a medieval history course he took as a Harvard undergraduate; a friend had been in the same

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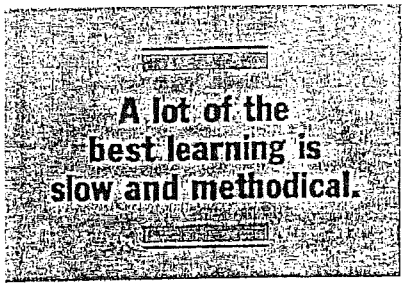
course the previous year and shared some super-learning advice. "Jim, this is a great course," the friend said. "And you only need to learn one book—Ganshof's *Feudalism*—from cover to cover." Sure enough, that text included every major theme covered in the course.

Patience. In his forthcoming book, *The Unschooled Mind: How Children Learn, How Schools Should Teach*, professor of education Howard Gardner directly tackles the learning question. He says that some of the most interesting research concerns belief in effort. Gardner asserts that "successful learners believe—from experience—that there is a high, if not complete, correlation between amount of sustained effort and ultimate performance. They are suspicious of quick fixes, of blitz studying, of formulaic responses."

Wilkinson agrees, stating that "there is a myth that good students have photographic memories and don't work hard—they just skim through everything and immediately get it. Actually they are quite hard-working, but they don't feel that they have to understand everything the first time through. On the contrary, a lot of the best learning is slow, methodical, and requires lots of reinforcement. Some people feel it's humiliating not to understand a difficult philosophical concept or the aorist of a Greek verb right off the bat. A good learner grasps the pace that is appropriate for a subject. It will take longer to acquire a reading and speaking knowledge of Russian than of Spanish; for the astute Russian student, that's understood, and it's okay."

Nagy looks not only for students who are willing to be challenged and debate ideas but for those who "have the *Sitzfleisch* (literally "flesh for sitting") to learn facts and absorb information in order to be able to debate." Krupnick bluntly asserts that "one thing which sounds obvious—but it's terribly overlooked—is that you have to be willing to work hard, no matter how bright you are."

The patient, grind-it-out, paced approach to learning may pay psychological dividends across the board. "Probably the most valuable thing students can do is to challenge harmful stereotypes," says Gardner. "Stereotypes such as: one is born smart or



dumb, one can risk taking an exam with one night's study, teachers just want to hear back exactly what they have said in class rather than seeing that the student has thought independently about it." In his new book, Gardner argues that such cognitive fetters are the deepest enemy of good learning, both in school and the outside world.

Relishing mistakes. At the higher levels of legal practice, perhaps the

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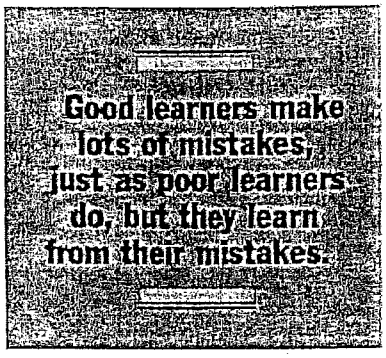
most important quality clients seek in an attorney is good judgment. Any top law firm can do solid legal research and thoroughly cover the technical aspects of cases, but sophisticated legal judgment is what ultimately saves enormous amounts of time and money. How does a lawyer develop superb judgment? By acquiring lots of experience. And how does a lawyer accumulate lots of experience? By exercising lots of bad judgment.

The point of this parable is that the trial-and-error method has always been central to the learning process, and mistakes are the very lifeblood of trial-and-error. "Good learners make lots of mistakes, just as poor learners do," says Wilkinson. "But they learn from their mistakes. They pay close attention to criticisms and comments on papers. Less successful students may not actually take in the teacher's comments, or simply get defensive. But a good learner is always looking for feedback."

Gottlieb describes good students as ones who are "comfortable with experimenting. They are not afraid to make a mistake. When they run into difficulty, they use resources—other students, the teacher, outside sources. When less successful students run into problems, they get frustrated and keep trying to prove a theorem, for example, by using the same approach over and over. They don't try a new route; they don't look at learning as a process and think about what they could do differently. Instead, they get stuck in detail and focus only on completing the task."

In American colleges, students who use such self-defeating methods discourage not only themselves but their



teachers. Nagy expresses concern about students who "believe that everything can be packaged as if it were a piece of merchandise that can be evaluated in *Consumer Reports*." And Riesman remarks on "the demoralization I see in faculty members knocking themselves out with students who are in college for the résumé, for the ride, or for recess." Yet, when someone is truly open to the learning process, and taps into a passion, "the excitement is contagious," says Riesman. "It rewards the professor, who looks forward to their meetings."

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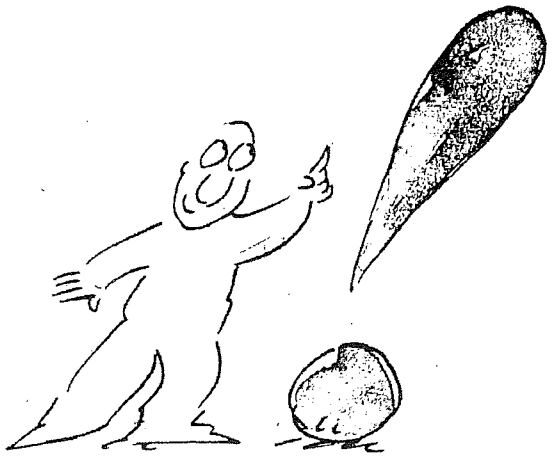

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