SMARTS: WHAT WE REALLY TEACH OUR STUDENTS

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For some years now, I've promised my students that they could learn to be smart, or at least to seem smart (which, I assure them, is all I've managed to do in my career). But I warn them that even seeming can be hard work, and intelligence in my area--humanities--doesn't necessarily carry over to other areas. Understanding a Gothic-style church won't help them solve differential equations--and vice-versa, of course.

The book *Outsmarting IQ* by David Perkins (Harvard UP, 1995) has given me a fresh outlook on just what it means to be smart, and how our students may be learning it (or not). The premise of Perkins' book, sub-titled "The Emerging Science of Learnable Intelligence," is that we are intelligent in three layers:

neural intelligence
experiential intelligence
and reflective intelligence.

In education, we think we're dealing primarily with the first two layers. Students come to us with a native intelligence that they've possessed from birth. We add to it experiential intelligence, what college teachers so succinctly term "content." As it turns out, the only useful smarts we can teach most of our students may be in the third layer--what they learn about their own thinking.

In our test-obsessed society, everyone's familiar with the initial layer of neural intelligence: neural function and structure, the "hard wiring" of individual brains. This kind of smarts is what standard intelligence tests measure (the "I" in IQ), and it consists of a rather vaguely defined set of cognitive functions. Though psychometricians have a hard time defining neural intelligence, they can successfully measure it. And IQ (what psychologists call the *g* factor) correlates highly across many tests and correlates also to success in school. But the further one goes in life, the less important conventional IQ seems to become. The most successful people in many occupations are not the ones with the highest IQ's.

By the time our students reach us at the college level, there's little we can do to affect their neural intelligence. But we do add a layer of smarts. In our courses, we offer students what Perkins calls experiential intelligence. This is the specialized knowledge and skills of writing expository prose, solving complex mathematical problems, interpreting statistical analyses, and creating an effective graphic design. Perkins describes experiential intelligence as "knowing your way around" a domain of knowledge. In other words, it means having a road map of the field, knowing the "moves" people make, doing what smart people in the field can do. Extensive domain knowledge and skill can make someone very smart, even if they do not possess exceptionally fast or precise cognitive function (IQ). Perkins cites the example of race handicappers: the best handicappers have average IQ. Their expertise relies entirely on their grasp of the complex factors in horse racing, and their skill in weighing these factors for each horse and jockey in each race.

But experiential intelligence has two shortcomings that should give pause to educators. In the first place, the domain knowledge of our disciplines tends to be so specific that it is useful only within that domain. As a humanities professor I know that in their

lives beyond humanities, relatively few of my students will have occasion to employ the distinction between the Renaissance and mannerist styles in painting. And even mathematicians acknowledge that certain kinds of mathematics are good for little except doing other kinds of mathematics.

There's a second limitation to experiential intelligence: it allows us to solve the old and familiar problems in a domain, but not the new ones. Perkins has a kind of 15% rule: that what we know allows us to do 85% of what is required of us, but that 15% of the problems or situations we face require some new method or procedure. At such "edge" moments--where we're at the outer edge of familiar or routine problems--we have to call on more general problem-solving and creative-thinking skills, because our domain knowledge cannot offer a solution.

At these "edge" moments, we need a kind of intelligence that is not contained as such in individual disciplines or domains. Perkins calls this *reflective* intelligence and I'll quote his short list of reflective smarts:

> Strategies for memory, problem solving, and so forth.
>
> Mental management (mental self-monitoring and management, sometimes called metacognition).
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> Positive attitudes toward investing mental effort, systematicity, and imagination.

Perkins asserts that this level of intelligence is, at once, the most learnable and most important for us to learn. It is reflective intelligence--the awareness of how to solve problems, the conscious application of extra-disciplinary methods to novel problems in the discipline, the disposition to persist in the face of novel difficulties--that enables domain experts to succeed in "edge" moments when their domain knowledge is insufficient. It is reflective intelligence that our students can transfer across the domains of their various courses and carry with them into life and career success.

We know well how to teach experiential intelligence. It's called the curriculum. But, if the truth be told, most of our curriculum is lost on any particular student (tell me now, how much calculus do you really remember from college?). What our students need to learn most is the metacurriculum: the mental strategies, decision-making skills, attitudes and dispositions, that are imbedded in our domains but that usually remain invisible to students. The most effective way to teach the metacurriculum--in fact, probably the only effective way to teach it--is as part of the content curriculum, so that every problem in statistics is felt as conscious practice in how to solve problems, every aesthetic judgment in art history is a conscious exercise in forming thoughtful value judgments.

Let me illustrate briefly with an example I tossed off earlier. In studying Renaissance painting, we employ an analytic distinction between the Renaissance style and mannerism. I sometimes teach this distinction by asking students to compare examples of each style. Then they compare their comparisons to Frederick Hartt's classic version. In this exercise, students are employing the kinds of stylistic analysis common to art history--a skill important in the domain, but not terribly significant in most of life's great challenges. But if I then ask them which style appeals to them more, and why it appeals to them, and how their taste for one style is expressed in aesthetic decisions they make in their daily life--then we've introduced a metacurricular reflection on how and why people make aesthetic judgments. Students will complain, "But that's just my opinion," and we will have to talk once again about all judgments-aesthetic, legal, historical, scientific--being just someone's reasoned and passionate opinion.

From this exercise, students absorb just one more example of the construction of human knowledge. They experience the necessity of justifying one's judgments according to the consensual criteria of a field of knowledge. And if this metacurricular reflection is repeated across economics, psychology, biology, and all the other domains in which we make the essential judgments of our lives, then the defensive whine of "just my opinion" would become the assured but tolerant judgments of an intelligent person.

If our students can become reflectively and dispositionally smart, then IQ would matter much less and our disciplines--as systematic practice in being smart--would matter much more. Not only that, but our students will be much better prepared to stand at the edge of their (and our) future, deciding whether to clone humans, whether to permit assisted suicide, how to care for the earth, and all the other difficult questions that lie just ahead.

♥ Philip E. Bishop, 2000