

# THE CHRONICLE

of Higher Education

## Commentary

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October 10, 2010

### Teach Creativity, Not Memorization

By Robert J. Sternberg

The greatest problem facing colleges today in admissions, instruction, and assessment is that administrators are locked into an archaic notion of what it means to be intelligent.

Some colleges and, increasingly, parents already recognize, for example, that our usual admissions procedures, with their reliance on standardized testing, select for a specific kind of cognitive and memorization-based intelligence. Pressure is mounting to consider instead a broad spectrum of attributes. In my new book, *College Admissions for the 21st Century*, I describe my experience as dean of arts and sciences at Tufts University, where, with Lee A. Coffin, dean of admissions, and the admissions staff, I introduced Project Kaleidoscope—a modified assessment tool for college admissions that succeeded in selecting candidates based on wisdom, creativity, and practicality, while doing a better job than the conventional admissions process of predicting the college GPA of those admitted.

But once we admit students with a wide range of abilities, we need to teach them in ways that reflect how they learn. If we are looking for qualities like creativity—which we hear so much about today—but teach students primarily in a way that rewards how well they memorize, then we are setting them and ourselves up for failure. Most people can agree that creative ideas are valuable to individuals and to our economy. But those ideas are often rejected because the creative innovator must stand up to vested interests and defy the crowd.

As educators, then, we need to do a better job teaching students to mobilize their creativity successfully. Let me suggest 12 ways to encourage creativity in the classroom.

**Redefine the problem.** We can promote creative performance by encouraging students to define and redefine their own problems, projects, presentations, and topics for papers, subject to approval; to choose their own ways of solving problems; and sometimes to

choose again if they discover that their approach was a mistake.

We cannot always offer choices in the classroom, but having choices is the only way students learn how to choose. Giving them latitude helps them develop taste and good judgment, both of which are essential elements of creativity.

**Question and analyze assumptions.** Everyone has assumptions, although they are not often widely shared. Questioning assumptions is part of the analytical thinking involved in creativity. We can help students develop this talent by making questioning a part of the daily exchange. It is more important for students to learn what questions to ask—and how to ask them—than to learn the answers. We need to avoid perpetuating the belief that our role is to teach students the facts, and instead help them understand that what matters is their ability to use facts.

**Teach students to sell their creative ideas.** Everyone would like to assume that his or her wonderful, creative ideas will sell themselves. But they do not. When I was a first-year assistant professor, the second colloquium I was invited to give was at a large testing organization. I was delighted that the company was apparently interested in adopting my ideas about intelligence, even though I was only 25 years old. My career seemed to be off to a spectacular start. I took the train to Princeton, N.J., and gave the talk. It was an abject failure. I went from fantasizing about a dazzling career to wondering whether I would have a career at all.

Students need to learn how to persuade other people of the value of their ideas. That selling is part of the practical aspect of creative thinking.

**Encourage idea generation.** Creative people demonstrate a "legislative" style of thinking: They like to generate ideas. The environment for generating ideas can be constructively critical, but it must not be harshly or destructively so. When suggested ideas don't seem to have much merit, don't just criticize. Instead, suggest new approaches, preferably ones that incorporate at least some aspects of the ideas that seemed overall not to have much value.

**Recognize that knowledge is a double-edged sword.** Some years ago, I was visiting a famous psychologist who lives abroad. As part of the tour he had planned for me, he invited me to visit the local zoo. We went past the cages of the primates, who were, at the time, engaged in what euphemistically could be called strange and unnatural sexual behavior. I, of course, averted my eyes. My host,

however, did not. He began, to my astonishment, analyzing the sexual behavior of the primates in terms of his theory of intelligence. I realized how knowledge and expertise can be a double-edged sword.

On the one hand, people cannot be creative without knowledge. Quite simply, they cannot go beyond the existing state of knowledge if they do not know what that state is. On the other hand, those who have an expert level of knowledge can experience tunnel vision, narrow thinking, and entrenchment. It happens to everyone.

Many students have ideas that are creative with respect to themselves but not to a field. I tell my own students that the teaching-learning process goes two ways. I have knowledge they do not have, but they have a flexibility I do not have—precisely because they do not know as much as I do. By learning from—as well as teaching—our students, we can open channels for creativity.

**Challenge students to identify and surmount obstacles.**

The question is not whether one will encounter obstacles. The question is whether the creative thinker has the fortitude to persevere. I have often wondered why so many people start off their careers doing creative work and then vanish from the radar screen. I think I know at least one reason: Sooner or later, they decide that being creative is not worth the resistance.

We can prepare students for disappointment by describing obstacles that they, their friends, and well-known figures in society have faced while trying to be creative; otherwise, students may think that they are the only ones confronted by obstacles.

**Encourage sensible risk-taking.** When creative people defy the crowd, they take risks. But there are levels of sensibility. Creative people take sensible risks and produce ideas that others ultimately admire and respect as trend-setting.

To help students learn to take sensible risks, we can encourage them to take some intellectual risks with courses, activities, and what they say to adults—to develop a sense of how to assess risks.

**Nurture a tolerance of ambiguity.** There are a lot of grays in creative work. Artists and writers working on new projects often report feeling scattered and unsure.

A creative idea tends to come in bits and pieces and develops over

time. But the period when the idea is developing is often uncomfortable. When a student has almost the right topic, it's tempting to accept the near miss. Instead, we should encourage students to accept and extend the period in which their ideas do not quite converge.

**Foster self-efficacy.** Many people often reach a point where they feel as if no one believes in them. Because creative work often doesn't get a warm reception, it is extremely important that creative people believe in the value of what they are doing.

There is no way to know for sure that an idea is good. There are, however, some questions to ask:

- Is there any empirical evidence to support the idea?
- Does the idea follow from any broader theory whose elements may have support?
- Is there some way of testing the idea? Have similar ideas been supported?
- Will you pursue an unpopular idea?

**Help students find what they love to do.**

Ask them to demonstrate a special talent or ability for the class, and explain that it doesn't matter what they do (within reason), only that they love the activity.

**Teach students the importance of delaying gratification.**

Part of being creative means being able to work on a project or task for a long time without immediate rewards. The fact of the matter is that, in the short term, people are often ignored or punished when they do creative work.

**Provide an environment that fosters creativity.** There are many ways to do that. The most powerful is to be a role model for creative thinking. Students develop creativity not when they are told to but when they are shown how.

*Robert J. Sternberg is provost and senior vice president at Oklahoma State University and a former dean of arts and sciences at Tufts University. This essay is adapted from his book *College Admissions for the 21st Century*, published this month by Harvard University Press.*

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The Chronicle of Higher Education 1255 Twenty-Third St, N.W. Washington, D.C. 20037

Teach Creativity, Not Memorization. By Robert J. Sternberg. October 10, 2010. Most people can agree that creative ideas are valuable to individuals and to our economy. But those ideas are often rejected because the creative innovator must stand up to vested interests and defy the crowd. As educators, then, we need to do a better job teaching students to mobilize their creativity successfully. Let me suggest 12 ways to encourage creativity in the classroom. Redefine the problem. We can promote creative performance by encouraging students to define and redefine their own problems, projects, presentations, and topics for papers, subject to approval; to choose their own way. But creative people are creative largely not as a result of any particular inborn trait, but rather through an attitude toward life (Maslow, 1967; Schank, 1988): They habitually respond to problems in fresh and novel ways, rather than allowing themselves to respond mindlessly and automatically (Sternberg, 2010c; 2013b; Sternberg & Lubart, 1992, 1995a, 1995b, 1995c). Like any habit, creativity can either be encouraged or discouraged. The main things that promote the habit are (1) opportunities to engage in it, (2) encouragement when people avail themselves of these opportunities, and (3) re... Sternberg, R. J. (2010c). Teach creativity, not memorization. *Chronicle of Higher Education*, 57(8), A29. How do you remember things? Is it easy? Do you have memorization techniques? Let's face it, there are many more things you need to pay attention to in life today than there was even 10 years ago. In fact, we are now expected to remember, learn, and instantly recall nearly 1,000 more pieces of data per day than what our grandparents did 100 years ago. If your memory could use a boost, these techniques are a way to increase your abilities. Just remember, there are also phone apps, low-tech note taking, and friendly reminders to help you recall important information when you need it. Here are 21 Teaching Creativity at IBM. From a post by August Turak on Forbes.com. Every great leader is a creative leader. If creativity can be taught how is it done? In 1956, Louis R. Mobley realized that IBM's success depended on teaching executives to think creatively rather than teaching them how to read financial reports. As a result, the IBM Executive School was built around these six insights. First, traditional teaching methodologies like reading, lecturing, testing, and memorization are worse than useless. They are actually the counter-productive way in which boxes get built. Most education focu