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**Expectations May Alter Outcomes Far More Than We Realize**

By

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British philosopher Bertrand Russell was only half joking when he described the powerful effect that the nationality of a scientist can have on lab rats. "Animals studied by Americans rush about frantically, with an incredible display of hustle and pep, and at last achieve the desired result by chance," he wrote in 1927. "Animals observed by Germans sit still and think, and at last evolve the solution out of their inner consciousness."

Seventy-six years on, scientists have documented the power of expectations, not only of lab researchers but also of teachers, athletic coaches, judges and work supervisors.

"Expectation becomes a self-fulfilling prophecy," says Robert Rosenthal, professor of psychology at the University of California, Riverside. "When teachers have been led to expect better intellectual performance from their students, they tend to get it. When coaches are led to expect better athletic performance from their athletes, they tend to get it. When behavioral researchers are led to expect a certain response from their research subjects, they tend to get it."

Expectation effects, also known as the Pygmalion effect, have been documented time and again (479 studies have found that teachers' expectations affect how students do, for instance). But nailing down exactly how expectations are conveyed to students, athletes or research volunteers through the nonverbal, subtle and usually unintentional messages that Prof. Rosenthal calls "covert communication" has been much tougher.

More alarming is how little-known the expectation effect is. And that means there is a good possibility that some of the effects we attribute to a particular cause -- from the benefits of smaller class sizes to the health-improving effects of wealth -- actually reflect the power of expectations.

The power of expectations in the classroom is downright scary. In a typical experiment, elementary-school teachers were told that one group of kids had done extraordinarily well on a test that predicts intellectual "blooming," and so would make remarkable academic gains. The test seemed prescient: After a few months, the "bloomers" it identified had achieved statistically significant gains over the other students.

In reality, there was no such test. To the contrary: The kids the teachers thought were bloomers included students from every ability level as measured by a nonverbal intelligence test. So did the supposed nonbloomers. "The only difference was in the mind, and expectations, of the teacher," says Prof. Rosenthal. Yet those expectations produced clear academic differences.

Teachers said they viewed the bloomers as better adjusted, more affectionate and less in need of social approval. That leads to real differences in how teachers treated their students -- the covert communication. Teachers with high expectations for their students "teach [them] more and teach it more warmly," Prof. Rosenthal writes in the journal Current Directions in Psychological Science. And they "tend to give greater opportunities for responding and more differentiated feedback" to these students, rather than a pat, "That's great, Ben." The first two factors affect student performance the most.

Expectation effects are not confined to human expectees. In one set of studies, 12 experimenters were each given five rats. Six experimenters were told that their rats were of a genetic strain that learned like long-tailed geniuses; the other six were told that their rats were dolts. The experimenters then spent five days training their rats to run a maze.

From the first day, the rats identified as bright ran the maze better -- and kept getting better.

You can guess the punch line: all the rats belonged to the same strain. They differed only in the experimenters' expectations for them. In this case, the covert communication probably came from the way experimenters with "smart" rats acted: They felt more relaxed and enthusiastic as they worked with the rats, talked to them less (fewer outbursts of "you stupid rat!") and handled them more.

"The extra handling of animals believed to be brighter may have contributed to the superior learning," says Prof. Rosenthal.

The size of the expectation effect varies, but is always statistically significant, and sometimes big. For teachers, high expectations can raise student performance 30%. For rats, they can improve maze learning 65%.

The power of expectations is the reason studies of new therapies are "double-blind"; not even the investigators know which patients received the active compound and which a dummy pill. Otherwise, expecting a new drug to be beneficial might subtly influence how investigators read an X-ray or assess a psychological condition.

But it is not always possible to eliminate the effect of expectations. That casts some findings, especially in the social sciences, in a new and curious light. All sorts of things are reported to boost student achievement, from using a varied vocabulary with little kids to keeping class size small. But if teachers or parents expect these things to make kids smarter, might the improvement actually reflect those expectations?

Humans may not be quite as impressionable as Russell's rats, but we're awfully close.