

## THE UNTAPPED POTENTIAL OF TRAINING

By Robert A. Bjork and Daniel Druckman

Of the top 1,000 U.S. companies listed by Forbes magazine in 1980, half were no longer in business under that name by 1990. The pace of change has become relentless in our society, and all institutions -- schools, business, the military, government agencies -- must continually adapt to survive.

To change an institution, you have to change the attitudes, skills, and behavior of individuals -- and usually that means training. But for many managers and administrators, employee training programs are terra incognita. They either misunderstand the nature of effective training, or, owing to organizational constraints, they are reluctant to commit themselves to the kind of training that gets results.

For the past ten years, as part of a long-term project carried out by the National Research Council, we have served on a committee that has investigated a variety of techniques designed to enhance human learning and performance. It has been an eye-opening experience. We have examined the research literature. We have gone to schools, companies, and military bases to see for ourselves what does and does not work in the real world. We have investigated techniques ranging from team building to hypnosis to various claims for "mind-over-matter" abilities.

Some techniques really can improve performance. Cooperative or team learning, for example, if structured appropriately, can be more effective than individual learning on some -- though not all -- topics and tasks. By working with others, people do learn many skills faster than by working alone. Many techniques need to be applied appropriately to be effective. Real-world simulations during training -- as in a flight trainer or computerized training program -- are a good example. Unless such simulations are combined with the learning of abstract principles and general procedures, trainees can lack the understanding and flexibility to respond appropriately when crises and other novel situations arise in the workplace.

A number of the techniques that enhance training, such as separating practice sessions in time or varying the conditions of practice, tend to create short-term difficulties for the learner. But in the long term they not only increase learning, they also increase the accuracy with which a person can assess the level of his or her own skills and knowledge. Such self-knowledge can be very important in applied settings. People who do not know an answer or procedure -- but think they do -- can pose a unique hazard, especially in such professions as air traffic control, nuclear power, or military operations.

We have also investigated a number of techniques that do not stand up to the strong claims made for them. Hypnosis, for example, though effective as a technique to manage pain, appears not to increase strength, endurance, or efficiency of learning. And there is no convincing evidence that Transcendental Meditation, as a method to reduce stress or enhance mental states, has benefits that go beyond other meditative techniques or systematic relaxation.

The results of research and practice now offer considerable guidance in designing training programs. But many managers remain reluctant to embrace training as a way of improving performance. In some cases, they are simply shortsighted: they see training as eating up time and money now for returns of uncertain magnitude in the indefinite future.

In other cases, managers think that differences in performance result not from training but from aptitude. They believe ability is innate, despite considerable evidence that performance depends largely on practice and experience. This attitude leads some organizations to spend more time trying to select the "right" people rather than giving people the training they need. The same fallacy often leads organizations to fail to recognize that teaching is itself a skill to be learned. Instructors are frequently hired only on the basis of their prowess in the skill to be taught. But being expert in golf, writing computer code, or preparing tax returns is no guarantee that a person has learned to teach those skills effectively.

Organizations do not need to stumble again and again in the face of constant change. They can learn about proven training techniques. They can hire trainers who have developed the skills for getting results. They can make a commitment to training rather than endlessly searching for the "perfect hire." Individual skills may not be innate, but the ability of humans to learn and change is. If organizations can learn to take full advantage of that universal ability, change will be their ally rather than their foe.

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