

The science of training and development in organizations: What really matters, what really works

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Each year in the United States about \$135 billion is spent in training employees — but those billions do not always improve the workplace because the skills often do not transfer to the actual job.

"[Learning](#) is a way of life in organizations," says Eduardo Salas, a psychological scientist from the University of Central Florida. "Everyone gets [training](#). But what matters? What works? What influences learning and skill acquisition?"

In a new report published in [Psychological Science](#) *in the Public Interest*, a journal of the Association for Psychological Science, Salas and co-authors conclude that when this money is well spent, "training and development activities allow organizations to adapt, compete, excel, innovate, produce, be safe, improve service and reach goals."

One of the most important things that "matters", the researchers found in their survey of the vast scientific literature on the science of training, is that human resource executives, chief learning officers and business leaders should view training as a whole system and not a one-time event. This means that what happens before and after the actual training are just as important as the training itself.

Training is especially effective when various jobs in the organization have been analyzed, the skill sets of its employees are understood,

supervisors and leaders are all on the same page and trainees are motivated to learn. During the training, whether it is computer and technology based or in a classroom, sufficient structure and guidance should be offered to trainees while still giving them opportunities to make decisions about their learning experience. After the training, trainees should have ample time and opportunities to use what they have learned in the real world with real feedback.

The individual characteristics that trainees bring to a learning environment are especially important to consider when implementing training programs. Research shows that trainees who believe that their abilities actually influence training outcomes are more likely to persist in learning activities, even when they encounter challenges. And psychological science has also shown that trainees who are oriented toward mastery or learning may perform better when they can control how they explore and organize training material, whereas trainees who are oriented toward performance seem to do better in highly structured environments that involve successively more complex tasks.

The broader psychological science of learning can also inform effective training programs. Research shows that a gap exists between performance in training and the integration of newly learned skills on the job. But that gap can be narrowed through the application of various empirically tested insights into learning. For example, repeating tasks within increasingly complicated contexts helps to ensure that learning lasts over time. Furthermore, encountering errors during training helps to prepare trainees for real-life situations as they are required to apply concepts learned in training. Finally, watching someone else perform certain skills can also contribute to learning, a concept scientists refer to as behavioral role modeling.

Despite the wealth of practical and scientific research in this field, as Paul W Thayer, professor of psychology from North Carolina State

University in Raleigh points out in his commentary accompanying the article, "There is still a tendency in business, government, and academia to adopt programs based on little more than attractiveness, modishness, or a desire to keep up with others in the field."

Salas and his colleagues have tips for policymakers, too, who may need to assess skills across an entire country or geographic region, and whose goals are more likely to include skills that are relevant to many jobs to ease employee transfers. Establishing a well-prepared labor pool can help to attract businesses, provide jobs, and increase competitiveness in a given area or industry. With this in mind, the authors emphasize that "government should not be promoting or investing in training efforts that fail to incorporate the principles of good training."

Policymakers can use the best practices of training evaluation to scrutinize funded training programs for inefficiencies and determine whether those programs still merit funding.

Before embarking on a training program, organizers should always ask a series of questions. What training strategy will be employed? What are we doing to ensure that we adequately engage, motivate and challenge the trainees? What are we going to do before and after this training to ensure [trainees](#) can and will use what they have learned?

"The take home message is that organizations who invest in training need to be informed by the science," Salas says.

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