Science has been the driving force behind human progress for the past 400 years. The scientific method has produced dramatic advances in most human endeavors including medicine, communication, manufacturing and transportation. Sadly, science is rarely applied to education and as a result, our systems of teaching and learning have advanced very little.

But science can help. Science in general, and brain science in particular, can make our teaching more effective, our learners more engaged, and our workplace more profitable.

Let’s look at how organizations can apply scientific best practices in four critical phases of training, including delivery, incentive programs, memory boosting and assessment.

**DELIVERY**

Most training organizations continue to provide employees with protracted training sessions that last from several hours to many days or even weeks. These training sessions are rarely effective because they conflict with the way that the brain processes and encodes information. For example, psychologists long ago discovered the spacing effect, which shows that people learn more easily over a long time (spaced learning), rather than cramming the same total duration of training into a continuous period (massed training).

**INCENTIVE PROGRAMS**

By rewarding a person simply for finishing a training program, organizations are ignoring scientific insights. While this may seem like a good idea, 50 years of behavioral research suggests that this approach is counterproductive since reinforcement should be delivered not for finishing training or even scoring well on a follow-up quiz, but when the learner expresses a desired behavior in an applied business setting. Paradoxically, evidence also shows that to get its full effect, the reward should be delivered only intermittently and not every time the behavior is expressed.

**MEMORY BOOSTERING**

American companies spend $60 billion a year training their employees. Unfortunately once this training is delivered, companies spend almost nothing on follow-up. This is a huge blunder because research shows us that people forget approximately 70 percent of what they learn within 24 hours and 90 percent within a week. This means that seven days after training more than $50 billion have been wasted.

The waste can be prevented. Cognitive neuroscientists have shown us how to establish a systematic program of follow-up training that dramatically increases retention and overcomes the forgetting curve.

**ASSESSMENT**

A fourth area of scientific neglect is our failure to collect data to evaluate the efficacy of our training programs. Fewer than 5 percent of training organizations perform meaningful self evaluation. As a result, we have no idea which aspects of our training is working and which are not. We are flying blind in ways that would never be tolerated in other areas of business such as operations, marketing or sales. By implementing assessment criteria into our training programs, learning and development professionals can evaluate program effectiveness.

**USING A SCIENTIFIC APPROACH**

Science is the single greatest invention of the modern age. It has solved some of our greatest problems and it has dramatically improved the quality of life for people across the planet. By applying a scientific approach to training, learning and development professionals can improve the way they deliver training programs within their organizations.

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