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As long as trainees are paying attention (and you can usually detect the body language), you’re helping to lock in the learning, even if you don’t call on them.


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The question becomes the schedule. Work intervenes, and the perfect reinforcement schedule isn’t always possible in the real world.

**Good news:** You have leeway within a reinforcement schedule, new research suggests. For example, say you know you are going to present material and then provide three reinforcement intervals within the next month.

Researchers tested a variety of schedules and found the most important thing was the absolute spacing – in this case, one month – rather than the spacing of the reinforcement intervals relative to one another.

That means you don’t have to worry about the precise timing of follow-up activities; a few days one way or the other won’t make much difference. More important is that learners complete all of the reinforcement exercises.

The study also provided evidence of just how powerful the spacing effect is. In this experiment, it doubled long-term retention.


**Emotional stress helps trainees remember**

We’ve mentioned before the power of “desirable difficulties” – that learning sticks better when learners have to struggle to acquire it. Here’s evidence that some emotional stress during learning improves long-term retention:

Medical students took a hands-on final exam as part of a medical-training research project. As part of the exam, they were required to recall material in front of an actor simulating a “standard patient.” This experience helped them remember answers six months after training.

Bottom line: Emotional stressors, such as naturally occur in a hands-on environment, are one good way to get learning to stick.


**Research: Training sticks better when trainees ‘self-explain’ it**

**Trainee:** Is 90 decibels half again as loud as 60 decibels, or 1,000 times as loud?

**Trainee:** It’s 1,000 times as loud.

**Trainee:** Because decibels are measured on a logarithmic scale.

This simple why question is one example of a cognitive psychological technique that researchers say is often overlooked. But it’s among the most effective techniques for making training stick.

**Moment of engagement**

Cognitive psychology researchers have found that the moment where trainees stop passively receiving training material and engage with it is crucial to retention. In fact, along with spacing and testing, it’s one of the top three factors.

There are two basic techniques for triggering this engagement:

1. **Elaborative interrogation.** This means asking questions such as “Why?” “What does this mean?” and “How can you apply it?” These seemingly simple questions have a profound effect. In one experiment, for example, a control group of biology students was asked to read a chapter on the digestive system twice during class.

An experimental group in a separate class read the chapter only once, but was stopped periodically by the professor and asked why-type questions, such as “Why must saliva mix with food to initiate digestion?”

The class that read the chapter once but was questioned during it averaged a 76; the controls who read chapter twice averaged 69.

**Conclusion:** Slowing down and thinking about the whys forced engagement that helped make the material stick.

**Take home:** Don’t be afraid to push trainees a bit while presenting material to get them thinking about whys and hows.

2. **Self-monitoring.** In another experiment, a control group of math students was told to “think out loud” while reading a chapter – that is, periodically stop and say what the learning was.

An experimental group was told to do the same thing, with one difference: In addition to recapping the lesson, they were told to explain it back to themselves.

As long as trainees are paying attention (and you can usually detect the body language), you’re helping to lock in the learning, even if you don’t call on them. But don’t be afraid to push trainees a bit while presenting material to get them thinking about whys and hows.


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Here’s what you’ll find inside this edition of Rapid Learning Insights:

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Emotional stress: good or bad for learners? .............................. 4
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Self-explaining ...  
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were asked to answer, “What do I already know?” and “What is new to me?”

The group that thought about “known vs. new” knowledge performed significantly better when applying the learning to different kinds of problems than those covered in the text. Both groups did about the same when the problems were similar to those presented in the text.

Conclusion: The “known vs. new” question required students to put the material together in a different way. They had to go back and explain each element to themselves in order to sort it into one category or the other. That engagement effort took the learning to a deeper level, which helped the learners apply it to novel situations.

Applying the principle

To see how you can harness the power of self-explanation into your training efforts, let’s continue the example, which is part of safety training on hearing protection:

Trainer: Logarithmic scale aside, do you believe that? Are you going to tell me that a lawnmower at 90 decibels is 1,000 times as loud as normal conversation at 60 decibels?

The key here is to challenge learners by asking them to relate the knowledge to a real-world experience.

Trainee: No. I don’t think a lawnmower is 1,000 times as loud.

Trainer: So you think something doesn’t add up here?

Trainee: Yes. The trainer is about to introduce a new concept. But she’s doing it in a way that forces the learner to re-examine the “explanation” he just provided.

In other words, the learner will now have to revise his explanation, which will help lock in the new learning.

Trainer: You’re right. Our ears don’t perceive changes in sound intensity on a logarithmic scale. Our ears may be battered by 1,000 times the sound vibrations, but our brains only perceive it about eight times as loud. It’s called the sone scale.

Trainee: You’re saying there’s a difference between what I’m hearing and what’s physically happening to my ears?

Trainer: Exactly. So can you rely on your ears alone to tell you when noise reaches a dangerous level?

This approach is much more likely to embed the learning than if the trainer had simply presented a slide explaining the differences between the sone and decibel scales. As the learner continues to “explain” these ideas to himself, he becomes his own teacher.

Source


When the going gets tough, make sure you end on a strong note

I'm material you plan to present is difficult, you might want to mix in stuff that's a little easier and present it at the end of a training session.

Here’s why: Researchers say there's real science behind the old saying, “All’s well that ends well.”

The research

Scientists gave students two lists to learn:

• List 1 contained 20 extremely difficult Spanish-to-English translations.

• List 2 contained 20 extremely difficult translations followed by 15 moderately difficult ones.

The students were tested after both List 1 and List 2. After a short break, they were given the option to return the next day and learn a new list.

They were asked to choose whether they would like a list more like List 1 or List 2.

The harder test seemed easier

Objectively, List 2 required more effort — it added 15 more items to the learning task.

Yet 70% of the students said the second list was easier to master and presented a less uncomfortable learning experience.

All’s well that ends well.

These results fit in with other research about physical discomfort. In such studies, researchers have shown that it’s not the duration of discomfort or arduous effort that people remember, but the peak level and final level of discomfort.

Note: There’s a nuance in applying these results. If you’re looking for short-term results, the perceived difficulty doesn’t matter much. In fact, students actually scored better on List 1.

But if you want trainees to return to the material, ending on a positive note will motivate them to do so.

What you can do

Here are some suggestions for applying this research:

1. Don’t rush through the end of a lesson. That’s a big temptation, but it will feel uncomfortable and disorganized to trainees, and that’s what they will remember.

It’s better to break off your lesson plan and try to find a high note to end the session.

2. Gauge the discomfort the material will likely cause. They call it a comfort zone for a reason. If you know you are pushing learners out of their comfort zones, plan an ending that’s more inside their comfort zone — such as reviewing material or presenting a part of the lesson that’s most familiar to them.

For example, a sales role play using a new closing technique might tax workers’ emotions. But perhaps you can focus on one small victory — finding the time to ask a new question — and end on that.

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self-explaining lesson
case study continued from page 1

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Yet 70% of the students said the second list was easier to master and presented a less uncomfortable learning experience.

And 73% said they would prefer to study and be tested on a longer list such as List 2.

So why did the harder test seem easier?
Researchers concluded the 15 easier questions at the end of List 2 created a more pleasant emotional experience for the learner, and that’s what they remembered.

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Ending with easier questions will make the whole lesson feel easier.
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