

## Productive Failure (Jan 15)



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“It’s easy to assume that, when it comes to eLearning, failure is the last thing you’d want to intentionally design for. Failure could lead to learner frustration, disengagement, or abandonment. But the research suggests that asking learners to experience a little struggle has clear benefits.”

Most traditional learning experiences end with some kind of assessment. But what about *beginning* your next module with a test? If it sounds like you're setting your learners up to fail, you are. And, believe it or not, that's a good thing.

Recent research has found that struggle during learning—called “productive failure”—has significant long-term benefits.

### Failing forward

A recent study from UCLA explored what happens when learners are thrown into the deep end. The researchers conducted the study in an introductory psychology course. They began some classes with a pretest—a multiple-choice assessment on the material students were *about* to learn. In other classes, they skipped the pretest and went straight to the lecture.

As you might expect, the students struggled on the pretests. But on the comprehensive final exam, students scored 10 percent higher on the pretested material.

A separate—and more extreme—study of learner failure, also carried out in a real classroom, reinforced these findings.

Math students were divided into two groups. One group received traditional math instruction—a lecture with instructor-led examples, followed by homework. The second group was simply given math problems to solve without any instruction at all. If that wasn't bad enough, the researchers also wrote the problems in an intentionally confusing style.

The “sink or swim” students fumbled through the problems week after week until finally, right before the exam, they received a lecture that explained all the key concepts.

How did they do on the exam? Again, they scored 10 percent higher than the traditional instruction group.

What the researchers did next is even more interesting. As a follow-up, they conducted a second test—this one on an advanced math topic that neither group encountered before. Half the productive failure group passed the test, compared to only 21 percent of the traditional instruction group. The experience of failure and struggle gave students something valuable.

## Implications

It's easy to assume that, when it comes to eLearning, failure is the last thing you'd want to intentionally design for. Failure could lead to learner frustration, disengagement, or abandonment. But the research suggests that asking learners to experience a little struggle has clear benefits.

Researchers offer several explanations for why failure works. First, it familiarizes learners with what they are about to learn. So, when trainees are exposed to the key concepts, their brains are already primed to receive it. Second, it reveals what learners don't know, ensuring that they don't go into a learning experience with false confidence, thinking they've already "got it." And third, struggle during learning may increase persistence, which is important when learning complex job skills—learners likely won't perform them correctly the first time.

## Application

Here are some suggestions on how to apply the research in your eLearning design.

Start with a pretest. Just like the study, ask students to answer a few multiple-choice questions upfront. If you're worried about their self-esteem, assure them that their grade won't count. Pretests inspire deep thinking and problem solving that will benefit learners' knowledge retention.

Start with a writing exercise. Ask learners to write about their existing knowledge on the topic. This will prime them for the learning experience to come, reveal their knowledge gaps, and cause them to evaluate their current behavior, which likely can improve.

Finish by asking learners how they will apply what they learned. At the end of a module, employ an open text box or an audio or video response to capture learners' plans for applying the new concept. Thinking about the real-world application will help them to distill the key ideas and deeply consider the changes they'll be making in their workplace behavior.

## Sources

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