

# Retenia

## Beyond eLearning



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## Introduction

If you have already implemented a sound eLearning program but want to ensure that your people remember what they learn, not just next week, but next year; then you are in the right place. Retenia is about what to do after you have implemented a successful eLearning initiative. Retenia is moving beyond eLearning in order to maximize the return on your existing training investments.

In this paper, we share three secrets for improving long-term retention and recall in your employees. These secrets are a result of decades of research in cognitive science. Best of all, the techniques can be applied in just a few minutes a day, a few days a week with Retenia; Procu's new cloud based information retention application. This tiny investment in long-term retention and recall can greatly improve the return on existing training initiatives.

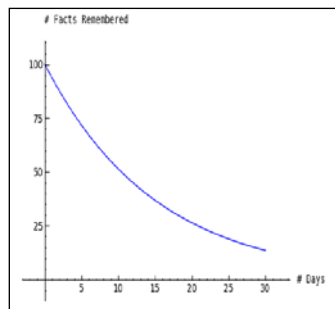
## The Problem

The problem most businesses quickly discover when training employees is that they leak. That's right, they leak information. You may know leaking by its more common name – forgetting. If you send your employees through a three hour eLearning course, they may forget 80% or more of the information they learn within thirty days. To be honest, they may have forgotten half of the information by the following Monday.

Employees forget – a lot – very quickly. Experienced managers know this all too well. In 1885, Hermann Ebbinghaus described the exponential nature of forgetting in the following mathematical equation:

$$R = e^{-\frac{t}{S}} \quad \text{Where } R \text{ is Retention (how much you remember), } S \text{ is Strength of Memory, } t \text{ is Time}$$

An example curve for this equation is illustrated below in Figure 1, which shows how quickly a typical employee may forget 100 new facts they have just learned (for example, how to properly mix different types of coffee drinks).



*Figure 1: Forgetting Curve For Typical Employees*

The precise slope of the curve will vary from employee to employee and subject to subject. Still, there is always a dramatic drop in knowledge retention over time. The shape of this curve represents how quickly average employees forget information. Do you recognize the curve? It is what is known as an *exponential curve*. That's right: employees forget information exponentially. This isn't much of a surprise. Most trainers and employees already understand how difficult it can be to learn new things; or rather, how easy it is to forget them.

So what is the difference between average employees and above average employees? Above average employees have learned how to make their memories stronger. They have learned how to remember longer. This flattens out their forgetting curve. They still forget, of course, but it takes a lot more time. For example, as seen in Figure 2, an above average employee may remember three times more facts at the end of 30 days than the typical employee.

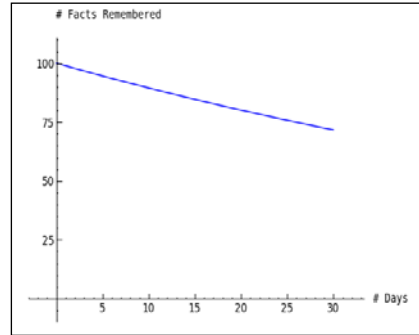


Figure 2: Forgetting Curve For An Above Average Employee

Of course, we are looking for our employees to be more than just above average. We want them to be *exceptional* employees. Do exceptional employees still forget? Absolutely.

The key to creating exceptional employees is to understand the nature of forgetting, and to develop a strategy for making stronger memories after the initial eLearning is over. Exceptional employees still forget, but they use strategies to reinforce their memories, making them stronger. What does the forgetting curve of an exceptional employee look like?

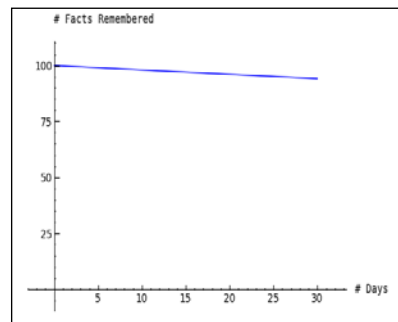


Figure 3: Forgetting Curve For Exceptional Employees

All employees forget important information. However, exceptional employees forget information *more slowly*. They have learned to create a forgetting curve that is closer to Figure 3

Figure 1. They have discovered the secrets of retaining and recalling knowledge.

Exceptional employees are trained by exceptional organizations that have learned to properly supplement and reinforce their existing eLearning initiatives. These organizations apply the secrets to creating exceptional long-term memories after traditional eLearning is complete. These secrets will move any employee from the curve in Figure 1 towards the curve in Figure 3.

The base biological speed at which humans tend to forget differs little between individuals, so if exceptional employees are remembering more, it is because the organizations in which they work use techniques to intentionally make their employees' memories stronger.

## Secrets to Long-Term Retention and Recall:

1. Never Stop Reinforcing
2. Spaced Repetition
3. Actively Recall

### Secret #1: Never Stop Reinforcing

If everyone forgets quickly, then clearly we can never stop reinforcing knowledge. If we stop, the employees will forget. At first, this may appear to be a lesson in persistence, but it is more than that. This is about brain chemistry and human cognitive architecture. Specifically, how to work with the brain's natural capabilities and not against them.

A few short minutes of focused review a few days a week can dramatically improve employee retention and recall. It is easy for the employee and can be delivered in a way that does not interrupt the employee's other work obligations.

### Secret #2: Spaced Repetition

A key question for an employee is what exactly should be reinforced for that specific employee on this specific day. To answer this question we have to model what the employee knows and how quickly they are forgetting it. Then, we have to create a customized reinforcement plan to meet that employee's specific needs on the specific day.

If an employee is trying to correctly retain and recall the ingredients of 15 sandwiches and we wish to dedicate only five minutes a day a few days a week to reinforcing this knowledge, then clearly we only want to reinforce facts right before they are about to be forgotten, otherwise, we are wasting time.

Retenia has highly refined algorithms for optimizing when to reinforce. We limit excessive review through *Spaced Repetition* where we increase intervals of time between reviews of previously learned facts. With every successful review, the interval increases, but if the employee makes a mistake at a review, the interval decreases. Spaced repetition maximizes recall while minimizing review time.

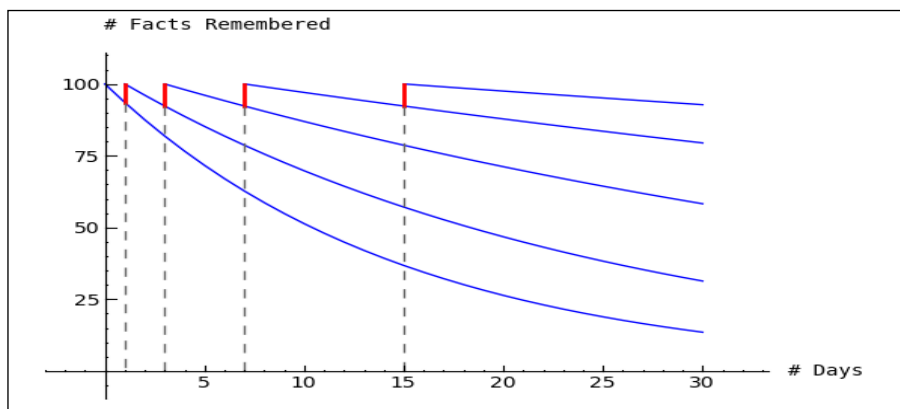


Figure 4: Creating the Exceptional Employee's Curve

Spaced repetition allows an employee to flatten their forgetting curves. Each well-timed review provides an opportunity for the memory to be strengthened and for the curve to flatten. The forgetting curve for a successfully reviewed fact declines **more slowly** than one for an unreviewed fact. That means that after a successful review of a fact, the employee can wait **even longer** until the next review.

### **Secret #3: Actively Recall Facts**

A third secret to improve your employees' long-term retention and recall is to use *active recall*, not passive review.

The concept of *active recall* is simple to understand. To make a memory as strong as possible, actively recall facts. For example: Jessie is learning how much milk to add to a large latte. Initially, she simply hears or reads the fact that needs to be learned:

A large latte requires 1/4 cup of milk.

This is called passive review. Jessie receives this information in a passive manner, perhaps from a reading in an eLearning course. Passive review is essential for learning at first, but is not how to study the material in order to remember it later. To remember long-term, Jessie has to practice recalling it *from her own memory*, repeatedly, over multiple days.

An employee needs to be challenged to actively recall the fact by answering a question. For the latte example, the questions we would ask Jessie could be in one of many different forms:

**True/False:** *A large latte requires 1/3 cup of milk?*

**Multiple Choice:** *A large latte requires \_\_\_\_\_ cup of milk.*

- 1
- 1/2
- 1/3
- 1/4
- 2/3

**Fill in the Blank:** *A large latte requires \_\_\_\_\_ cup of milk.*

Each one of these questions will challenge Jessie to actively recall the fact from her memory. This is a scientifically proven method to improve long-term retention and recall. Active recall helps cement the fact into her memory every time she has to recall the answer. If Jessie cannot answer correctly, she is simply given the answer again and her spaced repetition schedule is updated accordingly.

To further strengthen the active recall experience for Jessie, every time a fact comes up for review, the question for it should take a slightly different form. This challenges Jessie to learn the *fact* behind the question, not the question itself. For example, for the first repetition exercise, ask a True/False question, for the second repetition exercise, ask a Multiple Choice question and for the third repetition exercise ask a Fill in the Blank question. Each time a question is asked, some aspect of the question should be changed (if possible) to keep challenging Jessie to learn the fact, not the question.

After a topic is introduced in an eLearning course, incorporate active recall into a long-term retention and recall program. Active recall is essential to improving long-term memory.

## **Beyond Secrets**

Retenia was created to supplement your existing eLearning initiatives. We have many other secrets to share, but these three will get you started. We have uncovered the secrets to ensure all employees retain and recall the material long after their eLearning course is complete. A few minutes a day, a few days a week and your employees can experience dramatically improved long-term retention and recall of your important business training.

But don't take our word for it. We can prove the effectiveness of Retenia in a simple study using a control group. We can see the improvement in your employees' performance and prove to you the benefits of moving beyond eLearning.

Call Tom Meloche today at 734-355-0983 to schedule a demonstration of Retenia and to create a pilot project.

### **About Procu**it

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it Inc. is a privately held corporation that provides individuals, businesses and institutions with the ability to rapidly and effectively master and share knowledge. We provide the tools to deliver knowledge to a global market of employees, customers, and students.

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