The Science Behind mindmarker®x

NEW KNOWLEDGE AND SKILLS START TO FADE AWAY AS SOON AS YOUR PARTICIPANTS WALK OUT THE DOOR. FOR TRAINING TO HAVE THE MOST IMPACT, IT HAS TO BE **REINFORCED**.

This troubling situation is far too common: Your employees return from a training or e-learning course armed with new information and skills. Yet, days after the training, your staff begin to forget what they just learned and revert back to old habits. It is like the training never took place at all! While you invested a lot of time and money in the training, the impact is very low and this can be extremely frustrating. What is going on?

When you want staff to learn new information, retain it, and implement it in the workplace, you must understand the brain's ergonomics and design a program that is effective. The brain is a highly powerful organ that is capable of remembering lots of information, if you build a learning program that works with the brain's natural learning patterns, instead of working against them.

Mindmarker takes science, analysis, and studies from the last 10 years to create a proven methodology that works for reinforcement training programs that lead to lasting behavior change among participants. Shall we talk about leaners?

Reinforcement Leads to Impact

In order to discuss effective learning strategies, we must first look at forgetting. What makes people forget what they learned, and how can you design a reinforcement program that people will not forget?

Variables that affect a learner's memory include:

- Motivation to learn
- Prior knowledge
- Type of material being learned
- Learning methods used
- Amount of time the learning needs to be retained
- Contextual cues in the learning or remembering scenarios

There are common statistics cited by those in the learning field, and often these are assumed to be true without further analysis. One of these common statistics suggests that learners forget 40 percent of materials learned in 20 minutes, and 77 percent of materials learned within 6 days.

Another commonly cited statistic says that learners forget 90 percent of what they learned after a month. Clearly, these statistics are distressing to those who've invested heavily in training courses and want to see results. The good news is, these pessimistic statistics need not be true.

Thalheimer (2011) reviewed 14 studies on learning and remembering, looking at 69 distinct cases of forgetting over 1,000 individual learners. Based on this extensive research, Thalheimer found that no one can predict with certainty how much learners will forget unless they do multiple research studies on their own learners - something organizations are not able to do. While this does mean that those commonly-cited figures on forgetting are false, Thalheimer still found that learners are faced with varying amounts of forgetting that can be represented on a curve.

Unless you intervene, your staff will forget a higher percentage of new material soon after the training, and gradually forget less of the knowledge learned over time.

The Forgetting Curve

The concept of the Forgetting Curve dates back to 1885, when the German psychologist Ebbinghaus developed his memory retention theory. Ebbinghaus theorized that learners quickly forgot information in the days that follow a training. He tested subjects using made-up syllables, and plotted the results to develop the original Forgetting Curve.

Ebbinghaus's curve demonstrates that users lose memories when no attempt is made to retain information. So, it follows that learners have more likelihood of retaining new information when they make an attempt to remember it.

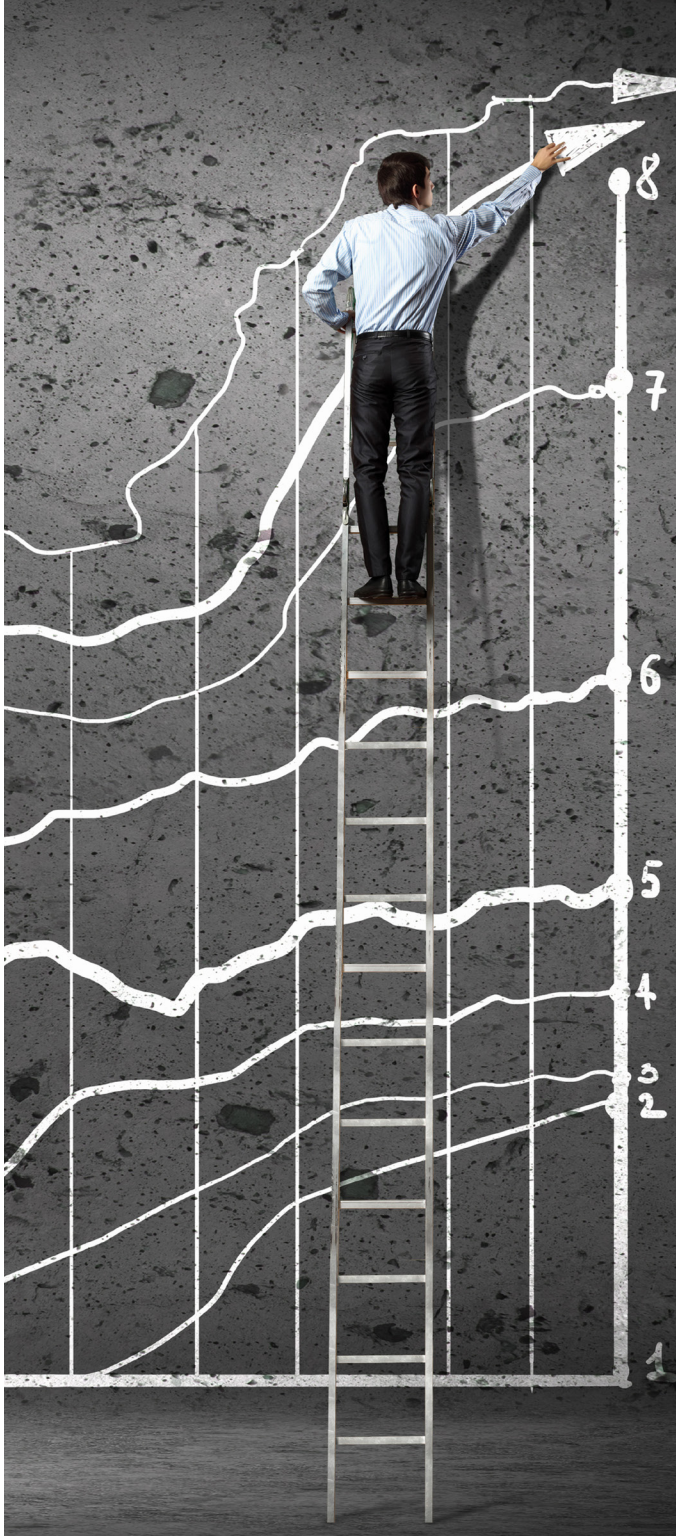
Your learners must continue to learn after the initial training to remember the information. In other words, learners need reinforcement. If you can provide your learners with opportunities to recall information — and therefore to reinforce the learning — in the days and weeks after the training, you can boost learning retention.

Ebbinghaus found several factors that helped learners remember material after training and decreased the Forgetting Curve effect. Ebbinghaus suggested asking and answering three questions about training:

1. How meaningful is the material to the learner, and are they truly interested in learning more?
2. How is the learning material represented? Are you offering visual learning or only text-based learning?
3. What other psychological factors may be at play? Are your learners stressed out, sleeping well, or exercising?

While you may not be able to alter the psychological stressors faced by your employees, you can make sure the learning material is represented using different learning modes. You can also to make the material both meaningful and interesting for your staff. By doing so, you will naturally decrease the amount of forgetting.

Ebbinghaus went on to suggest two more techniques that could increase memory retention: spaced training or spaced repetition and the use of mnemonic devices. The ideal time frame for repetition is within 24 hours of the initial training.



Understanding Spaced Repetition

Spaced repetition suggests that learners actually learn better when they space out studying over a long period of time. It would be better for a staff member to review training materials once a week for five weeks than to cram in five short review periods over the course of one or two days.

Spaced repetition software takes the familiar form of a flash card question and answer pair. Based on how quickly the learner can recall the correct answer, they can have the next review period sooner or further out.

This software is ideal as it allows the learner to focus on information recall and skills development, instead of timing or pacing. Utilizing software also reduces the demands on the learner, who can focus on the comprehending the material rather than managing the course of study.

What is the Difference Between Training Reinforcement and Spaced Repetition?

We understand the spaced repetition model, but how is training reinforcement different from this model? Training reinforcement adds additional layers of complexity to the spaced repetition model. Thus, it is a more effective model for training programs.

Training reinforcement takes into account your unique learning objectives, training materials, and desired behavioral changes to create a structured reinforcement program. This program is based on goals you define and creating behavioral changes that will last.

Reinforcement is a proven way to create behavior change and move training past simply reminding employees to being impactful in your organization on a day-to-day basis.

Authors Peter C. Brown, Mark A. McDaniel, and Henry L. Roediger III unpack the “Key Neurological Principle of Retention” in their book “Make It Stick: The Science of Successful Learning.” As they state, the Key Neurological Principle of Retention is purposeful recollection over set intervals of time. Spaced repetition, then, is one of the tactics that can be used to create retention. By turning your learning objectives into a story, or a set of events and messages, reinforcement programs can create lessons that stick. The key difference between spaced repetition and reinforcement is the narrative aspect. We know that learners are more likely to remember something when it is meaningful. Adding in the story element makes reinforcement more meaningful.

What is the Difference Between Reinforcement and Reminder Services?

Reinforcement and reminder services are similar, but there are important distinctions between the strategies. Each uses different technologies to measure results, and have achieved vastly different results.

To understand the difference, let's first review what reminder services are. If your organization uses a learning management system or LMS, you probably have access to some type of reminder service as part of the LMS. The LMS dashboard typically shows system administrators who have checked reminders, which reminder they have viewed, and where they are in the reminder process. Admins can then take the information gleaned in the reminder service as a tool to boost knowledge acquisition among staff. Methods used to accomplish this include LMS reminder, the e-learning platform itself, email reminders, and texts.

A typical reminder message has a link to a small bit of training material. The learner can then read the snippet, refresh their memory, and get that small reminder of what they learned. Admins can set messages on a recurring schedule. However, this schedule differs from training reinforcement programs, like Mindmarker.

Reminder messages are not personalized. They are simply snippets of material taken from the training, placed on a timeline, and sent out arbitrarily — at least from the learner's perspective. Thus, it should not be surprising that it is difficult to keep your staff engaged when you use reminder services. They are "one size fits all." The reminders may come too far apart for some users, and too close together for others. Reminder services also place no responsibility on learners to achieve results or meet goals. Finally, there will be some percentage of learners who do not read the reminders and thus fail to get the message. There is no accountability in the system. If you seek true change, you need reinforcement and not reminders.

How Training Reinforcement Works

Training reinforcement takes your learning objective, goals for reinforcement, and existing training material to reinforce skills acquired in a prior training course. Since your current content inspires the goal-based reinforcement story, you do not need to "reinvent the wheel" or invest significant amounts of time in developing new training materials.

Training reinforcement consists of a set of learning modules, each with a specific objective. A learning module may try to reinforce a few specific, desired behaviors. By being small and selective, the learning module promotes retention. Learners then move on to the next module once they have achieved a specific goal. When your staff use training reinforcement, they will be more likely to apply the new information in their day-to-day job functions.

While reinforcement messages use your existing material, they build on it rather than simply break it into smaller pieces. Each reinforcement message is created to express the desired behavior, then set into your modules where it can guide learners through your story, cement knowledge acquisition, and create the type of behavior change you wish to see.

How to Create Reinforcement Goals

You may have goals for learning, but your goals for reinforcement need not be the same. Remember, goals are there to give direction to learners and motivate learning. Training goals may be focused on building awareness and transmitting knowledge to learners. With reinforcement, the focus should not be on awareness. In fact, it should be quite the opposite.

To create the proper reinforcement goals, start by identifying the problem. What are the real issues or problems that you have created reinforcement training to solve? Discuss the issue with key stakeholders to figure out what the right goals should be.

It may be useful to ask the following set of questions when having the conversation about goals:

- Why is this important?
- What do learners actually do?
- What negative consequences could happen if learners do not adopt this behavior?
- How will learners know when they are doing something right?
- What would it look like to get this wrong?
- What actions or beliefs cause the most problems on a daily basis? Why?

Commonly, people start with a goal or objective that is too broad. For example, learners may lack management skills. Unfortunately, management skills is a concept that cannot be addressed successfully in reinforcement. Instead of trying to impact management skills as a whole, select one specific skill to work on in reinforcement. Then, build another learning module to address another desired skill. After putting together all of the learning modules, you will have a story that progresses toward the goal of improving management skills without overwhelming learners. You can also be more specific in directing training and getting to the end goal in a manageable way.

Many reinforcement programs want to bring about a behavior change. As a result, many of the goals are based on the action of doing something specific. Yet, reinforcement objectives may use different language; for example, asking the user to explain or define something. While it is good for learners to be able to explain a process, they actually need to be able to apply it. In this case there is a mismatch between the goal and the reinforcement objective.

Recenter the goal by asking yourself if learners would actually do something in their job, and if you would be able to tell whether the desired action had been done.

Reinforcement goals should help learners remember something, explain it, apply it, analyze a situation, and evaluate the action afterward in a progression. These objectives are a lot more specific than simply remembering something, and can be worked in any order and not simply chronologically.

Learners must of course understand a concept before they can analyze it. Yet reinforcement should always select the appropriate objective for the moment. A learner might be better off analyze patterns, to come to a deeper understanding of a principle. Or they may be better off evaluating their performance, to understand themselves better and prompt behavior changes.

When selecting the goal for reinforcement, match it the real problem your employees face. By identifying the problem, you can select the most appropriate goal. If there is a skills gap, for example, your employees do not know how to do something, so the “how” is what you must reinforce. If there is a communication problem, then your employees may need more directions or protocols in place to guide behavior in the moment.
If there are multiple problems that come into play, take it slowly. Address one problem at a time in order to create desired behaviors and improve performance across the board. Ultimately, the best reinforcement program dives deep into analysis and intensifies goals to boost performance.

Reinforcement Flow

Often, reinforcement experiences bring new information to bear on known problems or scenarios. This can be exhausting for learners, who must grapple with new information and new habits. Instead of presenting learners with lots of new information, and risk overwhelming them, you can structure reinforcement using the concept of *flow*.

At Mindmarker, we use the definition of flow proposed by psychologist Mihaly Csikszentmihalyi. With flow comes joy and involvement with life, as well as balance between challenge and the ability to meet the challenge.

If a challenge is too difficult for an employee, that individual will become very frustrated in reinforcement. If the challenge requires critical thinking and is mildly challenging for the employee, it can be satisfying. The employee can feel rewarded by meeting the challenge, and motivated to keep learning. The ideal reinforcement flow moves back and forth between challenging and rewarding your employees.

Along with challenging employees, you must provide feedback that lets employees see how they are doing at any time. Feedback is necessary for the development of skills. Of course, there are many ways to give feedback and the best reinforcement courses use a variety of feedback mechanisms to keep employees informed.

The Content, Challenge, Activity, Feedback model is a great model for reinforcement programs that naturally has many built-in opportunities to deliver feedback. Whatever model of reinforcement program you use, look for ways to increase the amount of feedback given to staff. Different ways that you can offer feedback include scores, ranking, visual graphs, points, and more. Along with providing feedback, make sure that learners can see clearly where they are in the reinforcement and what they need to work on next.

Learners need to be able to see the next goal in order to progress. By working through short-term goals, they will begin to achieve long term goals and finally be able to accomplish the overarching objectives for the reinforcement course.

Learners perform best when they know where they need to go next and how they are doing along the journey. When planning your reinforcement flow, remember to give learners a break. If you do not give learners a chance to rest during reinforcement, they will take a break anyway. Promote engagement by rewarding accomplishments and using structured goals that solve problems. Finally, use frequent, multifaceted feedback to guide behavior.

Measuring Timing and Results

There is no question that timing plays a role in the type of reinforcement messaging sent to learners. You may find that your learners are more likely to engage in training activities or spend time on self-reflection at certain times of the day, or even certain days of the week.

To accurately measure the skill development and knowledge retention, and of course behavior change, you must look at busy moments for learners.

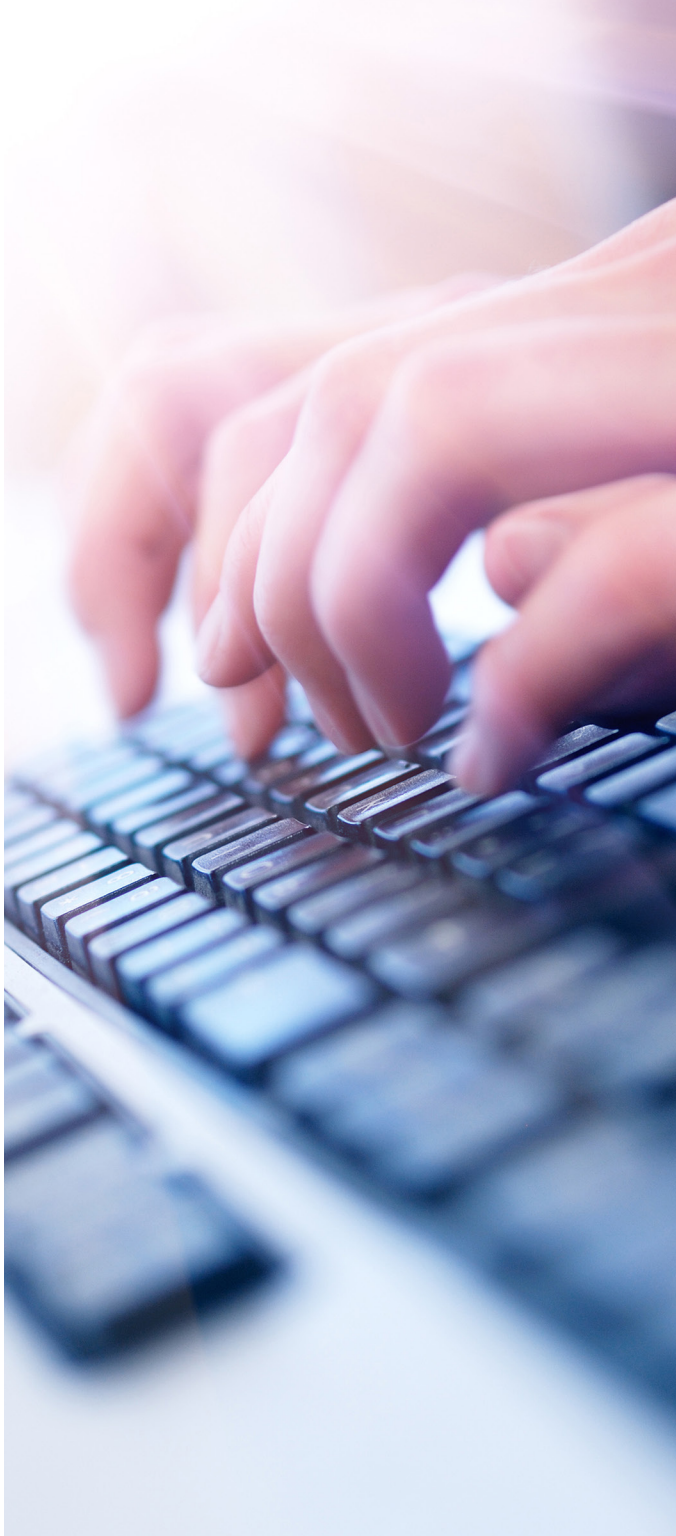
Training reinforcement programs include analytics that let administrators dig into learners' answers by job function, area, or department. Repeating survey questions lets you measure progress and hold staff accountable. By using them, you can see cause and effect. Reviewing analytics lets you dig deep into the reinforcement program, review the survey questions you have used, and ultimately create actionable intelligence. Actionable intelligence refers to reinforcement data that is turned into business intelligence and used to make informed decisions for the organization or for the training program.

Additional Science in Mindmarker's Methodology

As stated above, Mindmarker has taken studies and findings from the last 10 years to create a methodology that works for reinforcement and behavior change. In addition to the scientific findings discussed above Mindmarker uses the 7 Principles of Reinforcement, Goal Theory, Evaluation Theory, and Motivation Theory.

The 7 Principles of Reinforcement are:

1. Close the 5 reinforcement gaps
2. Master these 3 phases to get results
3. Provide the perfect push and pull
4. Create friction and direction in modules
5. Follow the reinforcement flow
6. Create measurable change in behavior
7. Put the learner central



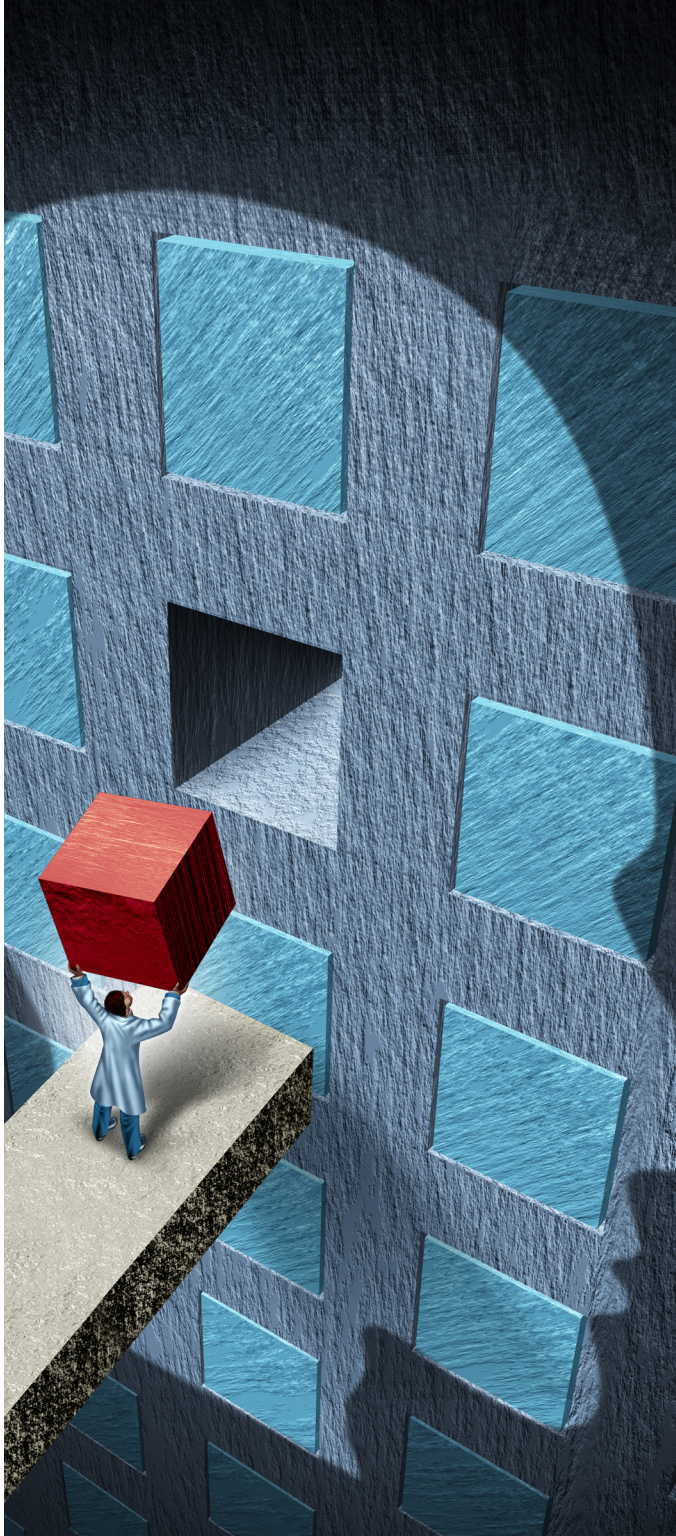
The Mindmarker webinar, available here for free, unpacks the 7 Principles of Reinforcement and shows how organizations can use these principles in their reinforcement program. By developing your reinforcement program with these principles in mind, you can create a best practices program that guides learners through the skills, knowledge, or desired behaviors you want to pass on, and sticks with the learner long after the reinforcement program concludes.

The Motivation Theory Mindmarker uses draws on findings of Icek Ajzen and Martin Fishbein. They propose that an individual's norms, attitudes about behavior, and perceptions of behavioral control shape their behaviors and intentions. By taking these factors into account, and using the flow theory developed by Csikszentmihalyi, Mindmarker creates a reinforcement flow.

Mindmarker draws on Skinner's classic Learning Theory and our observations insights from the last 10 years, which show that asking learners to summarize using their own language the things they have learned increases knowledge retention.

Finally, the Goal Theory Mindmarker uses recommends creating friction, and avoiding interleaving. By encouraging the brain to work hard, we can increase learning and retention alike. It is necessary to have the brain work harder; if the learning module is too easy, and does not challenge the mind, employees will breeze through the reinforcement and walk away without a better understanding.

The amount of up to date, proven science in the Mindmarker methodology makes our approach different from other training programs. If you want to boost knowledge and skills among your employees, and increase the application of desired behaviors, then you need our powerful, flexible reinforcement model.



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