



Learning After You Know It All

- Enhancing Compliance Learning and Maximizing Retention

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"It's what you learn after you know it all that counts."

-John Wooden

Abstract: Research shows that as much as 80% of the information learned in an instructor-led event, or eLearning course is rapidly forgotten. Even after the information is transferred to a learner's working memory, storage of that information decays if it is not recalled and re-encoded. When the key concepts, policies, and best-practices presented in life sciences compliance training are forgotten soon after training events are completed, the organizational risk rises dramatically, and compliance cultures are weakened. By contrast, a continuous learning approach to compliance training incorporates four evidence-based strategies (review and reinforcement, gamification, microlearning, and assessments) into the delivery of learning components. When training is deployed strategically and continuously across a learner's timeline, engagement levels rise, retention is maximized, and global risk is reduced.

The competition for learners' attention spans continues to grow. Trainers, managers, and chief compliance officers understandably express concern about whether sales representatives and supporting staff will recall the lessons and best practices learned in their training, particularly when they need it most – in the field as they interact with healthcare professionals. Research has shown that a "continuous learning" approach to curriculum development and deployment is needed to address the requirements of modern learners appropriately and adequately inculcate the knowledge they must retain at critical moments in their employment.

Continuous learning refers to the ongoing development of skills, abilities, and knowledge through varying means (including work on the job, training, experiences, communica-

tions, etc.), and is part of an individual's professional life at work and outside of work.² A continuous learning approach to compliance training means extending learning beyond the initial learning event.

Enhancing the Compliance Learning Curve

In the late 1800's, the German psychologist, Hermann Ebbinghaus, was the first to conduct experiments on how people learn, remember, and forget. He began by teaching himself a list of nonsense syllables. When he tried to recall the items on the list, he learned that his ability to recall the items improved as the number of repetitions increased.

Ebbinghaus also was the first to identify what is now commonly known as "the learning curve." For compliance trainers, his learning curve experiments point to the need to understand that those new to concepts and policies may struggle as they learn the language and best practices surrounding topics as diverse as anticorruption, product promotion, HIPAA, and interactions with healthcare professionals.

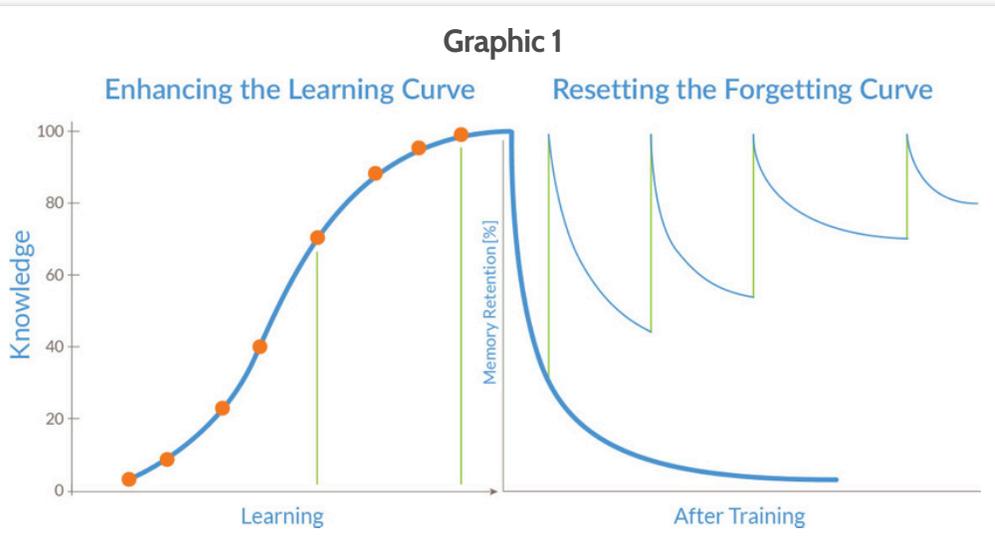
The experiments also show the need for trainers to take a deeper dive and blend the foundational eLearning covering those subjects with custom training and workshops that stress more specific topics like gifts and meals; red flags for third-party vendors; and fair balance, to advance learners' paths toward mastery along the Compliance Learning Curve.

Resetting the Compliance Forgetting Curve

After he practiced a list of sounds until he could repeat the list two consecutive times, Ebbinghaus waited varying periods of time to test his memory. He noticed that immediately after the

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² "Continuous Learning," Bersin by Deloitte, <http://www.bersin.com/lexicon/Details.aspx?id=12807>



learning experience, his recall was 100 percent, but memory dropped steeply the first few days. Further, he found that memory loss was exponential, and it increased by the square of the previous number until finally flattening out around 30 days post-training event.³

In other words, the information people remember after a learning event declines dramatically after completion of that event. In fact, within one month, learners will have forgotten an average of 90% of what they have learned.⁴ The pattern at which that happens is known as the Ebbinghaus Forgetting Curve.

Ebbinghaus’ work and the plethora of research that subsequently confirmed his findings, serve as constant reminders that a one-and-done approach to compliance training is not effective. For programs that adopt this approach, it may even keep them from being seen as effective in the eyes of the U.S. Department of Justice (“DOJ”) or the Health and Human Services Office of Inspector General (“HHS OIG”)

Concepts, policies, and best practices must be reinforced on a regular basis to effect real behavior change in employees across the organization, especially those interacting with healthcare professionals. Refresher training components, including mini-modules, assessments, games, and reinforcement quizzes, need to be integrated into a curriculum and spaced continuously across the learner’s timeline, from start to end of employment.

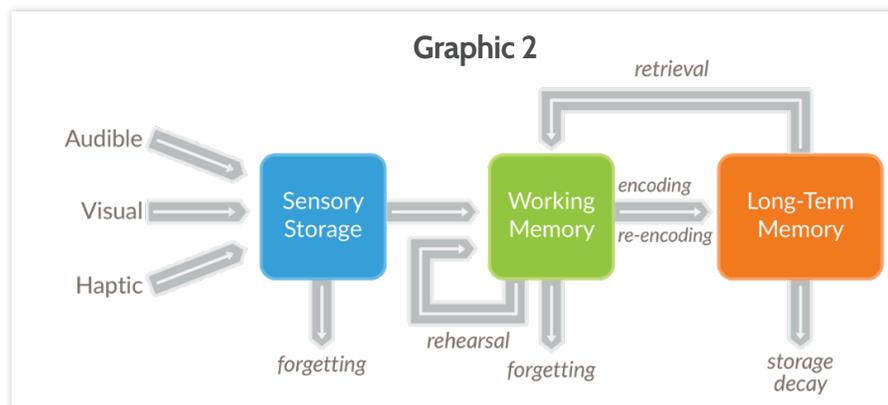
How Memory Works

Based on our current understanding, the human memory consists of three major components: sensory memory, working

memory, and long-term memory. As indicated in Graphic 2, forgetting occurs during the sensory storage and working memory phases, and storage decay, the process by which humans lose memory of the information they don’t use, occurs in long-term memory.

Most of what enters our sensory memory decays very quickly. It is the shortest-term element of memory, but it acts as a buffer for the five senses of sight, hearing, smell, taste, and touch.⁵ The information a learner wants to retain passes from sensory memory to working memory.

Working memory is defined as the cognitive function responsible for keeping information online, manipulating it, and using it in thinking.⁶ According to modern scientific theory, humans can only hold 3-5 discrete pieces of information at one time.



Long-term memory is defined as a system for permanently storing, managing, and retrieving information for later use. Items of information stored in long-term memory may be available for a lifetime.⁷ Please note the word, “may,” in the previous sentence. For long-term retention to occur, information must be transferred from working memory to long-term memory. That process is known as encoding.

3 Margie Meacham, “Don’t Forget the Ebbinghaus Forgetting Curve,” <https://www.td.org/Publications/Blogs/Science-of-Learning-Blog/2016/01/Dont-Forget-the-Ebbinhaus-Forgetting-Curve>, (January 20, 2016).

4 Christoforos Pappas, “The Forgetting Curve in eLearning: What eLearning Professionals Should Know,” <https://elearningindustry.com/forgetting-curve-in-elearning-what-elearning-professionals-should-know>, (December 31, 2014).

5 “Sensory Memory,” http://www.human-memory.net/types_sensory.html

6 “About Working Memory,” Pearson, <http://www.cogmed.com/about-working-memory>

But, as referenced earlier, information that is encoded into long-term memory will decay if it is not utilized. If learners are not repeatedly using the information in compliance training, they are simply not retaining it, and the more they forget, the higher the level of risk across an organization.

Instructional Strategies for Continuous Compliance Learning

Research and our experience have shown that four instructional strategies are key to solving the dilemma of information decay in long-term memory:

- **Review and reinforcement** (using adaptive questioning)
- **Gamification**
- **Assessment**
- **Microlearning**

Review and reinforcement starts with a pool of questions mapped to the objectives and content of the learning event. Through an adaptive questioning process, learners are presented questions repetitively until they have met predetermined mastery criteria. For example, if the learner correctly answers a question about partnering with a third-party vendor three times in a row, it is retired from the question pool.

Gamification refers to creating friendly competition between individual learners or teams. This may be during a Plan of Action meeting or workshop, or through a leaderboard in an online continuous learning system. Learners look forward to competing when there are only positive consequences.

Assessments are not only a proven tool for measuring learning post-event, but research has shown that repeated quizzing, leads to long-term memory retention. The process helps learners retrieve information from long-term memory, into working memory, and re-encode back into long-term memory.

Microlearning is a hot topic in life sciences compliance training for a good reason. It is an extremely effective tool when used to supplement and reinforce core or foundational training. In fact, the learning assets in core courses can be reconfigured into microlearning nuggets. A course on good communications practices, for example, can be divided into microlearning nuggets covering individual lessons, like best email practices, and deployed over time. In addition, microlearning offers an opportunity raise the level of creativity and engagement since it can be deployed in the form of brief video scenarios or even podcasts.

Each of these strategies should be spaced periodically across a learner's timeline. To fit the training comfortably into a learner's daily routine, exercises should be kept short: no more than 10 minutes maximum. One study shows that student engagement drops off precipitously after six minutes.⁸

Implementing Continuous Learning in a Compliance Training Curriculum

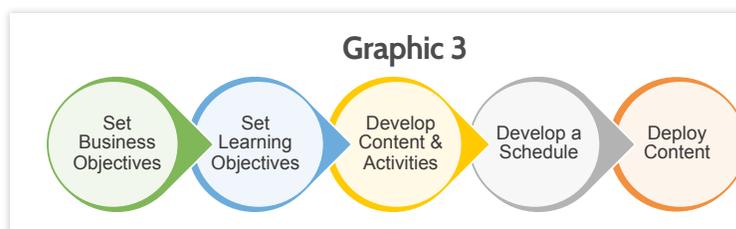
Integrating continuous learning into a compliance training curriculum is a strategic process that also requires tactical thinking. Existing curriculums should not be abandoned and replaced by a continuous process. Core learning events are necessary to communicate certain types of content and set the foundation, but continuous learning should be integrated to address an organization's key risk areas. The steps outlined in Graphic 3 represent a strategic plan for starting that process.

Set Business Objectives

Step one is to think strategically and establish real and tangible business objectives, whether they are defined from the top down by the CEO or board, or they emanate from the compliance department. If for example, a company is expanding into China and Russia, certain business objectives around that expansion, including anti-corruption efforts, need to be defined and enunciated.

Set Learning Objectives

Once a clear business objective is defined, those responsible for policy development and training must collectively identify the learning objectives that will support the business objective. In other words, "what learning needs to happen to achieve this business objective?" In the case of the company expanding globally, those learning objectives might be for learners to recall basic guidelines to follow when giving anything of value to a foreign official, or recognize the actions that can be interpreted as bribery.



⁷ "Medical Definition of Long-Term Memory," *Medicine Net*, <https://www.medicinenet.com/script/main/art.asp?articlekey=15299>

⁸ Philip Guo, "Optimal Video Length for Student Engagement," <http://blog.edx.org/optimal-video-length-student-engagement>, (November 13, 2013).

Develop Content and Activities

Assets to meet the learning objectives can include existing eLearning modules, policy documents, case studies, workshop materials, quick reference cards, videos, and even recorded webinars or podcasts. Once suitable assets are identified, they need to be “chunked,” or reconfigured into suitable pieces, organized by learning objective and stored in one place, whether that be an online system or on the company network. New assets can be developed and stored alongside the existing ones, to close any gaps in the process of meeting the identified learning objectives.

Develop a Schedule

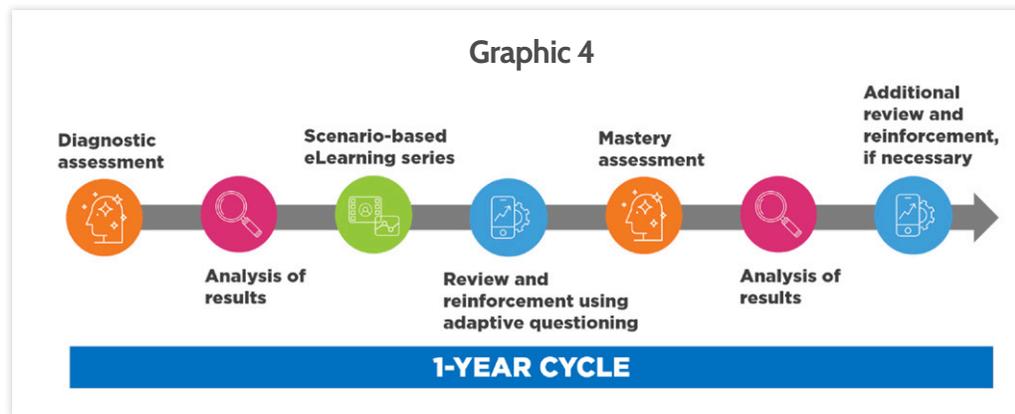
A continuous learning schedule needs to be developed and published to all team members involved in content creation and delivery. The schedule needs to address the macro, or high-level, activities necessary to achieve objectives, like the dates for release of learning modules, as well as the micro activities, such as the number of times each question should be pushed out to learners.

Deploy the Content

Whether online training is delivered through a dedicated Continuous Learning System, a traditional LMS, or a combination of methods, it needs to be deployed according to a schedule that maximizes the memory re-encoding process. The same holds true for instructor-led training. No matter the tools utilized for deployment, all components need to be tracked carefully and the results recorded to determine when the learning objectives have been met.

Case Study: Code of Conduct Reinforcement

A mid-sized life sciences company first launched its core Code of Conduct training in 2013. The custom-developed eLearning module featured a series of interactive scenarios that detailed situations addressed in the Code, including violence in the workplace, sexual harassment, and insider trading. In subsequent years, the compliance department built and launched refresher training focused on specific topics identified as high-risk and in need of further support. While the refresher training was one step toward a more continuous



deployment, additional strategies were needed to raise the level of retention and engagement.

The first step toward a broader continuous learning approach involved the use of a diagnostic assessments to assess the current knowledge level among the learners. Based on an analysis of those results, a series of highly engaging, episodic mini eLearning modules were developed and delivered. Review and reinforcement exercises, using adaptive questioning, followed each episode of the eLearning series. Learners were issued a mastery assessment, from which results were analyzed to determine at what level the review and reinforcement process needed to be repeated. The cycle was repeated as needed in three-month sequences over a one-year period.

Summary

Continuous learning is not a new or revolutionary concept. The fundamentals of the methodology have been advocated by leaders in the field of learning for years. The use of continuous learning in the practical application of corporate learning continues to grow, as more trainers realize that the integration of the four core instructional strategies of a continuous learning curriculum (review and reinforcement, gamification, assessment, and microlearning) hold the key to dramatically increased memory retention. And in the field of life sciences compliance, where increasing regulations and changing policies now seem to be the norm, the increased retention of critical and evolving information leads to longer-lasting behavior change and lowered risk across the organization.

⁹ See David Meyer, *Novartis CEO Joseph Jimenez Is Stepping Down*, FORTUNE (Sep. 4, 2017) at <http://fortune.com/2017/09/04/novartis-ceo-joseph-jimenez-retire>.

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