

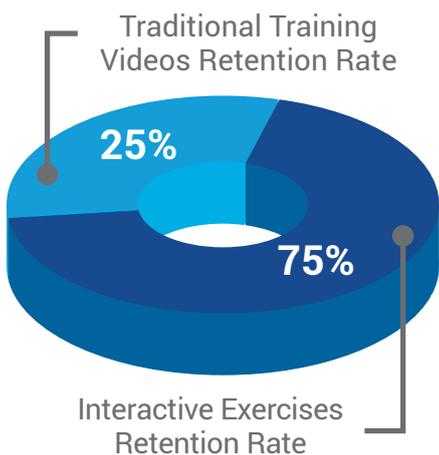
SECURITY AWARENESS TRAINING WHITEPAPER THE POWER OF INTERACTIVITY AND REPETITION

ABSTRACT: The InfoSec Institute's security awareness training uses a mix of **short lectures** and **real-world exercises** that require learners to get hands-on. We encourage our customers and provide the tools to **stagger the roll-out** of these modules across their employees throughout the year. When used together, these scientifically proven approaches allow us to deliver higher levels of **learner retention**, completion and interest than any other provider of Security Awareness training.



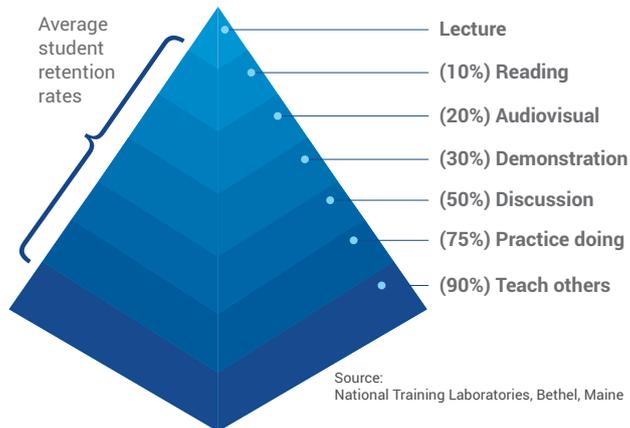
THE POWER OF INTERACTIVITY

When social scientists and educators discuss the effectiveness of various types of learning, a well-known diagram called the “Learning Pyramid” is frequently referenced. This diagram is built upon research published by the NTL Institute for Applied Behavioral Science in the early 1960’s. Similar versions were in circulation since at least 1954, when the Edgar Dale Dryden Press published “Audio-Visual Methods in Teaching” to encourage “that people learn best when they are actively involved in the learning process.”



The Learning Pyramid expresses the retention rates of various teaching methods along a continuum of least engaging to most engaging. At the bottom are “lecture” and “reading” at about 10%. Next are “Audiovisual” and “Demonstration”, the level of teaching provided by traditional training videos, which provide retention rates between 20-30%. Next is “Discussion”, which requires learners to interact with others and helps people fill in their own gaps of understanding. Then comes “Practice Doing,” which boosts retention all the way up to 75% by requiring learners to fill in their gaps of understanding to complete activities. Almost all public and private childhood educations programs already aim for this level of interaction (think of homework, in-class labs, presentations, etc.) and experts have repeated found that this level of interaction is best for adult learners as well.

LEARNING PYRAMID



The difference in retention between traditional training videos and interactive exercises is significant and important. With traditional training videos providing only a 25% retention rate and interactive exercises providing a 75% retention rate, the difference in retention is three times (3x) better with interactive methods! With this in mind, it is no surprise that InfoSec Institute’s security awareness training uses interactive exercises to increase learner retention.

Interactive drag-and-drop exercises

Interactive selection exercises

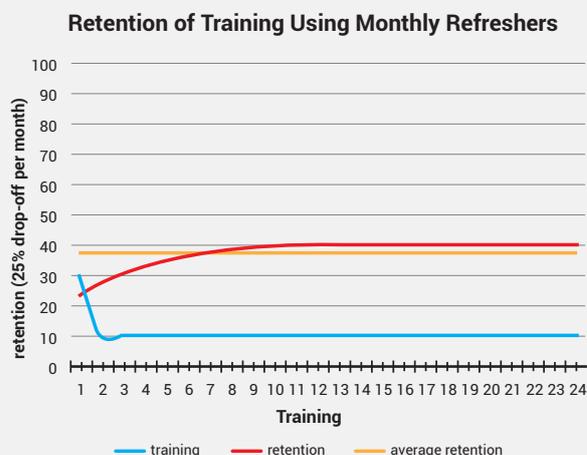
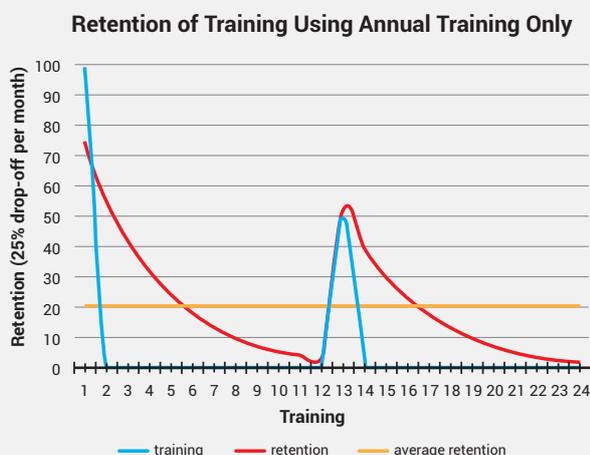
Interactive quiz exercises



THE POWER OF REPETITION

Research* has suggested that people lose up to 25% of the material they previously remembered from month to month. We can use that information in a basic statistical model that demonstrates the power of staggered monthly training over traditional annual training methods.

THE TWO FIGURES TO THE RIGHT SHOW THIS MODEL IN ACTION



The top figure shows an annual training seminar providing 100% of the training content (in blue) and an annual refresher providing 50% of the content. If initial retention is 75% (assuming we're using interactive methods) and month-over-month loss of retention is 25%, learner retention (in red) falls almost to zero before the annual refresher.

The refresher helps by boosting retention back over 50%, but that also falls quickly back towards zero. Overall, this method yields an average year-round retention level of only 20%!

The bottom figure shows a different way of providing training. Here we provide an initial training seminar (in blue) that covers only 30% of the total material, and then add 10% more material every month. Initial retention (in red) is worse than the annual training method, but retention throughout the year actually increases and quickly achieves a level rate above 40%! Average year-round retention rates follow this trend (dragged down slightly by initial retention) and also achieve almost 40%.

Clearly, the superior method of training is to add a little more training each month rather than use large annual training sessions if your goal is year-round learner retention. Additional research* backs up the statistic model. In 1979 a researcher named H.P. Bahrick examined the effect of stacking the same learning sessions on the same day, on three consecutive days and in three consecutive months. In his study, learners forgot 63% of the material from the single-day training session and 26% from the three-day sessions. You might expect a single-digit retention loss from the once-a-month sessions, but Bahrick surprisingly found that learners' retention was a negative value (-41%), which meant that the once-a-month sessions actually improved retention of previously learned concepts through reinforcement!

* = Thalheimer, W. (2010, April). "How Much Do People Forget?" (a synthesis of 14 scholarly articles on learning retention and teaching methods) Retrieved August 14, 2015, from <http://www.work-learning.com/catalog.html>



CONCLUSION

Decades of scientific research show the most effective techniques for increasing learner retention are heightened interactivity and repetition. Both techniques are used throughout the InfoSec Institute's (SA) program.

The InfoSec Institute SA program uses high-quality audiovisual modules that engage users with frequent exercises to deliver interactivity. The SA program also uses an innovative "learning management system" (LMS) to stagger the delivery of training across a calendar year (or other period) to maximize retention and reinforce important concepts.



ABOUT OUR TRAINING PROGRAM

The InfoSec Institute (SA) training program is built on a 15 year legacy of award-winning cybersecurity education to the workplace. Our highly interactive program addresses the security and compliance needs of finance, retail, manufacturing, logistics and consulting corporations, US civilian departments and agencies, state and local governments and educational institutions.



ABOUT THE INFOSEC INSTITUTE

Since 1998, the InfoSec Institute has trained more than 45,000 domestic and international cybersecurity professionals for government and corporations. Our efforts have earned us dozens of recent awards.



Core Modules

Malware
Phishing
Password Security
Safe Browsing
Working Remotely
Physical Security
Removable Media
...and others

Optional Modules

PCI-DSS
FISMA
Sarbanes-Oxley
...and others



"use of diverse media, mixed duration, interactivity and changing visuals in modules enhances the uptake and retention of new skills."

Gartner MQ for Security Awareness CBT Vendors - 2014