



THE
BOB PIKE GROUP Engineer Curiosity

June 7, 2017
2:00–3:30 p.m.

WHY LEARNERS NEED SPACE & TIME: A “HOW-TO” FOR IMPROVING RETENTION

Learning Objectives:

- Recognize the cognitive neuroscience behind “spacing” and its results compared to massed practice. Experience spacing in action during the session
- Apply action plan created with spacing techniques to a training
- Implement elements of spaced retrieval practice to your content

Presented by
Becky Pike Pluth, M.Ed., CSP, MPCT



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NOTES NOTES NOTES

The Spacing Effect

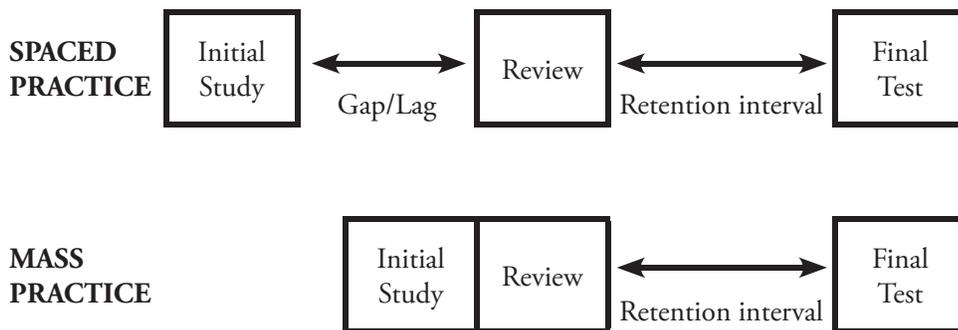
The effect has been around for more than a century (Ebbinghouse, 1885/1913) and although it is a best practice for long-term memory it is still used rarely in training.

Spacing Definition – _____
_____. It is most helpful for long-term retention.

Example:

1. _____
2. _____
3. _____
(in a different mode or method)

Common used design process for spaced learning



Three Types of Memory

Immediate Memory

- Collected through sensory, sight, sound, touch
- Ability to remember and process at the same time
- Like a scratch pad for temporary recall of information
10–15 seconds
- Collected in the frontal, pre-frontal and parietal lobes

Working Memory

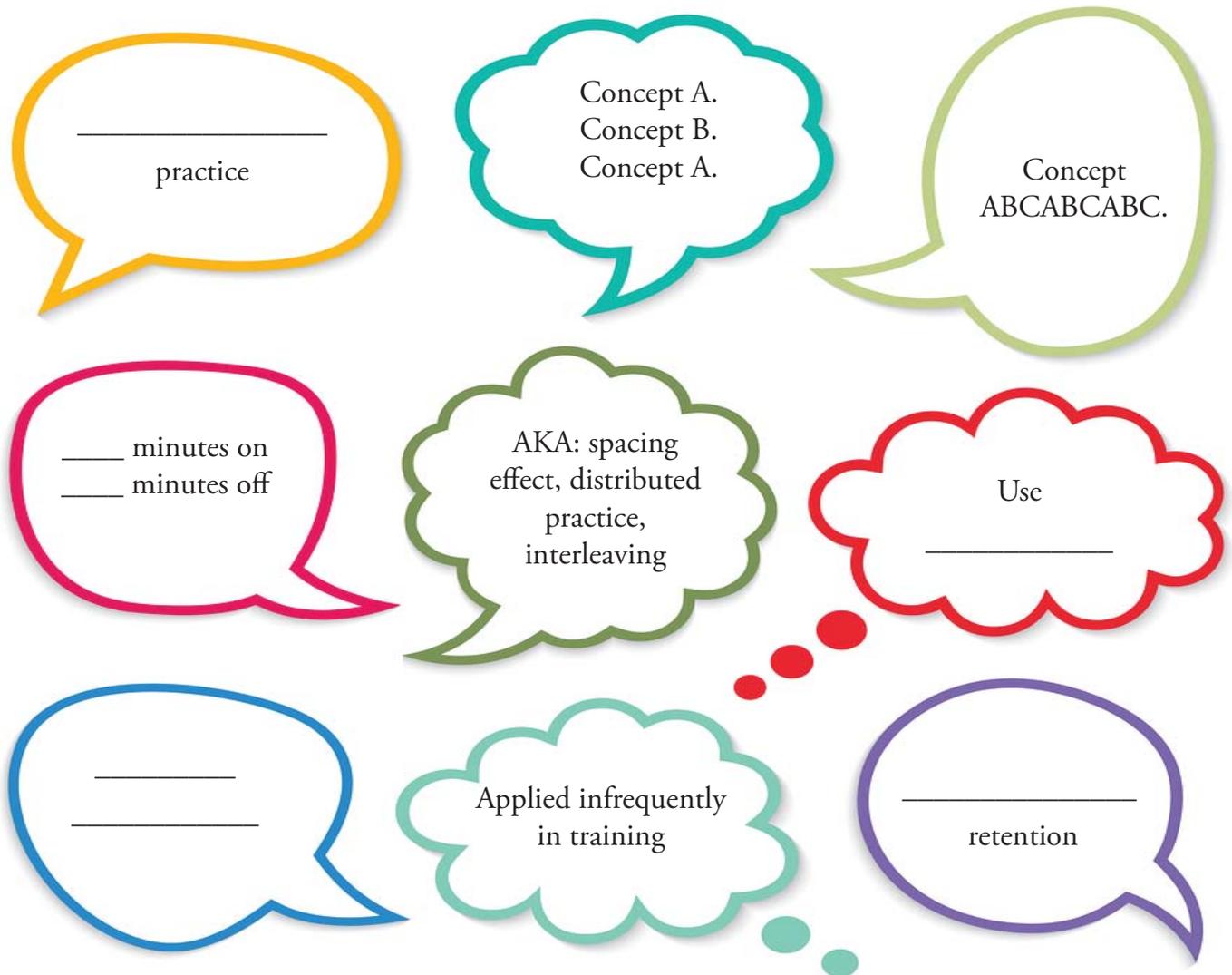
- Temporary storage and manipulation of information
- Calculations
- Can last 30 seconds – few days
- Limited space

Long-term Memory

- Can last days to years
- Collected in the hippocampus and maintained throughout the brain
- Unlimited space



Spaced Learning Concepts



Massed Practice:

- Practice is continuous
- Rest at end of learning
- Single skill over and over in same way (flash cards), no variety
- Also known as: repetition, block practicing, rote memorization, cramming
- Memorization
- Less effective
- Applied frequently in training
- Short-term memory

In his 2015 book, *How We Learn: The Surprising Truth About When, Where, and Why It Happens*, Benedict Carey writes about the power of spaced learning: “Nothing in learning science comes close in terms of immediate, significant, and reliable improvements to learning.”



Just a few of our 139 Creative Training Techniques® (circle or highlight the seven or more you've seen modeled already today):

- **Games** with purpose are short, interactive activities that draw learners back into the content and help with memory through association (especially learners who are competitive by nature).
- **Creative visuals** like flip charts capture people's eyes ... so they will listen with their ears.
- **Choices** help create buy in and goodwill. Happy learners are naturally more curious learners (and unhappy learners will tune you out).
- **The 90/20/10 Rule** keeps people guessing what's next and creates a curious "energy" in the group because things are always changing.
- A **powerful quote**, an **interesting statistic**, or an **outrageous statement** makes people interested in hearing more.
- **Learning partners** engineer curiosity because each one feels more accountable for the other person's or groups' learning too.
- Carefully selected background **music** subtly sets the tone for learning.
- Make a **promise** at the beginning of class (e.g., "by the end of this session, you will experience 19 ways to...").
- **Surveys** help people gauge how their opinions stack up against their peers'.
- **Fill-in-the-blanks** help DISC "S" and "C" people follow along and create order.
- Set out **props** but don't talk about it until later in the session.
- **Table toys/manipulatives** spark creativity and a bit of unexpected fun.
- Have people **flip through the manual** in advance to pique curiosity about what is to come.
- Provide a **roadmap** for the class so people can see where they're going and follow along.
- Hand out **evaluations early** in the class and offer incentive for completion.
- **Start differently than what is expected.** For example at The Bob Pike Group we don't start off with a huge biography of who we are – instead biography information is located in the handout.
- Place class "**ground rules**" on a poster on the ground (instead of on the wall).
- Start with a story and finish the story at a **cliff hanger** point, being sure to finish later in the day.
- Use **videos** to preview content.



Spacing Planner

Workshop Title	Time/Duration– 60 Minutes
Business Need 1 – 2 –	Learner Objectives 1 – 2 –
(BEFORE) Pre-Learning ≤ 5 Concept A _____ ≤ 5 Concept B _____ ≤ 5 Concept AB _____	
(DURING) Opener – Break Preoccupation	
Concept A Content: Participation: Revisit:	
Concept B Content: Participation: Revisit:	
Concept A Content: Participation: Revisit:	
Concept B Content: Participation: Revisit:	
Closer – Action Planning/Transfer Strategy	
Week 1 Follow-Up	Week 3 Follow-Up
Week 2 Follow-Up	Week 4 Follow-Up



Spacing Checklist			
Min. Timing	CPR Chunks	Interaction Type	PPT/Materials
-0:05 – 0:00	Soft Opener		
0:00 – 0:04	Opener		
0:04 – 0:08	Agenda/Objectives		
0:08 – 0:13	Content A		
0:13 – 0:18	Process/Participate		
0:18 – 0:23	Content B		
0:23 – 0:27	Process/Participate		
0:27 – 0:32	Content A		
0:32 – 0:37	Process/Participate		
0:37 – 0:42	Content B		
0:42 – 0:47	Process/Participate		
0:47 – 0:52	Q & A		
0:52 – 0:56	Revisit A & B		
0:56– 1:00	Closer		



How do I apply spacing?

Before the Workshop

- Manager connects with trainee and sets goals
 - Expectations for workshop?
 - Measure of success?
 - Behaviors that employee should do more, less, better, differently?
- Micro-learning – 0–5 minute bite sized learning modules
 - Video
 - Podcast
 - Article
 - Survey
 - Questions
- Prepare class to incorporate spaced learning
- Create active learning activities

During the Workshop

- Start with an opener
- Retrieval Practice Repetition
 - Polling
 - Games
 - Decision tree
 - Skill practice
 - Demonstrations
 - Testing
 - Clickers
 - Flashcards
- Presentation Repetition
 - Examples
 - Illustrations
 - Role play
 - Explanation/Lecture
 - Teach back
- CPR (Content, Participation, Revisit)
- EAT (Experience, Awareness, Theory)
- 5 minutes of reflection (What? Gut? So what? Now what?)
- Underlining, fill-in the blanks, record to recall
- End with a closer/call to action
- Draw out what they already know
- Link content to prior knowledge or previous workshop
- Revisit + Feedback (correct misinformation)

After the Workshop

- Manager encourages trainee to use new skills
 - Provide practice time
 - Share learning with team
 - Apply on the job
- Utilize a job aid
- Teach a peer
- Micro-learning (www.UMU.com)
 - weekly then monthly
 - Webinar
 - eLearning module
 - Quiz
 - Survey Monkey
- Short Emails
- www.mindtrigger.com
- 5-minute meetings
- Social learning group
- Spaced deadlines



Order of Delivery

E

A

T

Experience

- Experience touches _____.
- Emotions help us to _____ later.
- Use whole palette of emotions (Nice to Know page ____)

Awareness

- Awareness is the _____ that says:
“I never thought of that before.”
“I never thought of it that way before.”
“I never understood that before.”
- Key to cementing awareness is in the _____ of the activity.
- Get participants _____

Theory

- This is _____ message/topic/content.
- Adults love _____ – they’ll want to make sure they got it “all” or got it “right.”



Steps to Designing “EAT” (for a chunk of content)

1. Determine the message you want participants to receive.

2. Decide what activity you could create that would most closely have participants “feel” or “experience” what you want them to feel about your message.

3. Include how you will debrief the activity. (How will you help them reach awareness?)

4. Write facilitator notes for delivery in this order:

- a. Activity (experience)
- b. Debrief (awareness)
- c. Message/content (theory)



Ways to Provide EAT for Participants (what they do, say, see, hear, read, write)

Do/Touch	Say	See
Field Trips	Brainstorming	Demonstration
Find & Fix	Buzz Groups	Films/Video Clips
Interactive Learning Activities	Debate	Job Aids
Laboratory	Discussion	Maps/Charts
Matching	Interview	Mindmaps
Picture Studies	Memorizations	Objects/Object Lessons
Problem Solving	Paired Shares	Picture Crosswords
Projects	Questions & Answers	PowerPoint
Reality Practice	Quiz	Props
Research	Report	Windowpane
Simulations	Teachback	
Skits	Testimonies	
Sort Cards (steps in process)	Mnemonics	

Hear	Read	Write
Case Histories	News Articles	Action Idea List
Lecturette (under 8 minutes)	Teachbacks	Crossword Puzzles
Stories		Fill-in-the-blanks
Panels		Questions
Songs		Whiteboard/Poster

Combine two or more methods for best chance of recall later.



Resources

Benjamin, A. S., & Pashler, H. (2015). The value of standardized testing: A perspective from cognitive psychology. *Policy Insights From the Behavioral and Brain Sciences*, 2, 13-23.

Birnbaum, M. S., Kornell, N., Bjork, E. L., & Bjork, R. A. (2013). Why interleaving enhances inductive learning: The roles of discrimination and retrieval. *Memory & Cognition*, 41, 392-402.

Cepeda, N. J., Coburn, N., Rohrer, D., Wixted, J. T., Mozer, M. C., & Pashler, H. (2009). Optimizing distributed practice: Theoretical analysis and practical implications. *Experimental Psychology*, 56, 236-246.

Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. *Psychological Science in the Public Interest*, 14, 4-58.

Ebbinghaus, H. (1913). *Memory* (H. A. Ruger & C. E. Bussenius, Trans.). New York, NY: Teachers College, Columbia University. (Original work published 1885)

James, W. (1899). *Talks to teachers on psychology: And to students on some of life's ideals*. New York: Henry Holt. (Page 129)

Kang, S. H. K. (2016). Spaced Repetition Promotes Efficient and Effective Learning: Policy Implications for Instruction. *Policy Insights from the Behavioral and Brain Sciences* 2016, Vol. 3(1) 12-19

Kapler, I. V., Weston, T., & Wiseheart, M. (2015). Spacing in a simulated undergraduate classroom: Long-term benefits for factual and higher-level learning. *Learning and Instruction*, 36, 38-45.

Pluth, B.P. (2016). *Creative Training Techniques: A Train-the-Trainer Field Guide*. Creative Training Productions LLC.

Make It Stick: The Science of Successful Learning dives into the details of spacing: "Embedding new learning in long-term memory requires a process of consolidation, in which memory traces ... are strengthened, given meaning, and connected to prior knowledge." The authors explain that the essential ingredient is time.

Action Ideas





Action Ideas



Becky Pike Pluth, M.Ed., CSP, MPCT



With more than 15 years as a training professional and two training industry best-selling books on the market, Becky Pluth, The Bob Pike Group's President and CEO, doesn't rest on her laurels. "Continuing education, whether formal or informal, is critical for those of us in education!" Becky said.

"And, for many of us in this industry, I think the desire and passion for learning comes naturally."

As proof of her desire to continuously strive for "great," Becky was named one of Training magazine's Top 40 under 40 in 2012.

Becky has more than 17 years of exposure to Bob Pike's Creative Training Techniques® (CTT) and vast experience in cross-functional training design and delivery, project management and business operations. She easily employs a participant-centered approach to classroom training, one-on-one training and blended e-learning. Becky also infused CTT into all of her design and development while working as a corporate trainer for Target Corporation and overseeing the training department at Event Think, a multi-million dollar event management and communications company.

Programs she has particularly enjoyed designing and delivering include Webinars that Work, organizational-change management, systems training, and leadership and team development.

Becky's charismatic personality and facilitation style place participants at ease, and she empowers each learner to leave their training setting and immediately put their insights into action. Sustainable, practical change and strong adult learning principles in practice are her foci.

Becky has helped many Bob Pike Group clients realize cost savings and training efficiencies through utilizing a participant-centered approach. Some Bob Pike Group clients who have consulted with Becky are: Bose, Cisco Systems, Coca-Cola, Hewlett Packard, Intel North America, Interval International, Karl Storz, Kellogg's, Kimberly Clark, Kraft, Medica, Microsoft, Minnesota Education Association, National Park Service, Sepracor, Tampa Electric, Target Corporation, Uline, USA TODAY Education and Wells Fargo.

Becky is a certified K-12 teacher and received her master's degree from St. Mary's University. She is a member of the American Society for Training and Development and the National Speakers Association. She also is the author of the award-winning *101 Movie Clips That Teach And Train* and *Webinars with WoW Factor*.



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The Bob Pike Group

The Bob Pike Group's Creative Training Techniques™ help people learn twice as much in half the time. Each project is designed from the ground up using activities that have attendees participating in their own learning. These tools allow learners to “catch” what’s being taught while having fun. Participants take ownership of their learning and quickly discover on-the-job applications for their training.

Our participant-centered approach is successful because it focuses on the needs of learners. We understand that attention spans are short, so we routinely capture people’s interests. Even television directors understand this challenge, and they change camera angles every six seconds to keep viewers hooked.

Our techniques, grounded in adult learning theory and brain-based research, create buy-in, enthusiasm, and ultimately change behavior. After all, learning doesn’t occur until behavior changes. Companies large and small work with us to save time and money on training while improving measurable results.

The Bob Pike Group design and training consultants are experts with real-world experience so they know what it’s like to be on the frontlines of industries like technology, healthcare, government, and manufacturing.

We are the industry-leading firm to train your trainers, design your training programs and develop your leaders. Over 300,000 people on five continents have changed the way they train forever because our interactive methods achieve more with less.

If you would like to discuss any training or consulting topic in more detail or you would like more information on The Bob Pike Group’s comprehensive system of performance solutions, please fill out the form or call us at 1-800-383-9210 and ask for one of our Client Solution Directors. We would like to assist you in your on-going personal and professional development goals for your organization.

