Spaced Retrieval
Icon Key

- Safety
- Activities of Daily Living and Independence
- Orientation and Wayfinding
- Name Recognition
- Details and Information
- Spaced Retrieval
- Spacing Effect
- Errorless Learning
- Remember Things to Do
- Names of Objects
- Eating or Swallowing Behaviors
- Social Skills
- Literature Review
The spacing effect was used to show that older adults performed worse than younger adults in recalling information.

Balota et al., 1989

Camp, 1989
SR was used to train subjects to recall face–name associations.

Ebbinghaus, 1885/1913
This study laid the foundation for SR. The subject learned nonsense syllables by memorization and then was later tested for free recall.

Peterson et al., 1963
The spacing effect was used to train subjects to recall pairs of words and numbers.

Hogan & Kintsch, 1971
The spacing effect was used to train subjects to recall word lists.

Spitzer, 1939
Expanded retrieval was used to examine the rate of forgetting in comparison to subject ability.

Glenberg, 1977
The spacing effect was used to train subjects to recall word lists.

Glenberg, 1979
The spacing effect was used to train subjects to recall word pairs.

Landauer & Bjork, 1978
The spacing effect was used to teach subjects first and last names.

Schater et al., 1985
SR was used to train subjects to recall faces in correspondence to names, hometowns, and hobbies.

Camp, 1989
SR was used to train subjects to recall face–name associations.
Camp & Schaller, 1989
SR was used to teach one subject the name of a care partner.

McKittrick et al., 1992
SR was used to train subjects to recall tasks for future actions.

Abrahams & Camp, 1993
SR was used to train two subjects to recall target objects from the Boston Naming Test.

McKittrick & Camp, 1993
SR was used to train subjects to recall familiar objects from the Boston Naming Test.

Stevens et al., 1993
SR was used to teach one subject to use a calendar to perform weekly tasks.

Wilson et al., 1994
Errorless learning was used to teach subjects the names of people and objects.

Bird et al., 1995
SR was used to decrease subjects’ problem behaviors.

Bird & Kinsella, 1996
SR and a written word cue were used to train subjects to perform motor tasks.

Hayden & Camp, 1996
SR was used to teach subjects with Parkinson’s disease a verbal, motor, and motor-verbal task.

Carruth, 1997
SR, combined with singing, was used to train subjects to recall face-name associations.

Camp & Foss, 1997
SR was used to teach one subject to recall a care partner’s name to reduce behavior perceived as difficult.
SR was used to train subjects to recall face–name associations.

Camp & Foss, 1997
SR was used to teach one subject to recall a care partner's name to reduce behavior perceived as difficult.

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Brush & Camp, 1998a
SR was used as a functional tool for helping subjects reach speech-language therapy goals.

Brush & Camp, 1998b
SR was used to train one subject compensatory strategies for safe swallowing.

Hunkin et al., 1998
Errorless learning was used to teach one subject to perform basic word processing tasks.

Vanhalle et al., 1998
SR was used to train one subject to recall face–name associations.

Cherry & Simmons-D’Gerolamo, 1999
Subjects learned to recall names of target objects.

Cherry et al., 1999
SR was used to teach subjects to recall names of everyday objects.

Anderson et al., 2001
SR was used to teach subjects to recall personal information.

Bird, 2001
SR and a fading cue were used to train subjects to replace undesired behaviors with appropriate ones.

Davis et al., 2001
SR was used to train subjects to improve recall of personal information, face–name associations, and performance on the Verbal Series Attention Test.

Lee & Camp, 2001
SR was shown to be a useful cognitive intervention for older adults with HIV.

Lekeu et al., 2002
SR was used to train subjects to consult a card posted on the back of a cell phone that had directions for how to use the device.

When I eat I:
1. take a small bite
2. chew slowly
3. swallow

Toilet
Bourgeois et al., 2003
SR and a modified cuing hierarchy were used to train subjects to enhance social skills, activities of daily living, and participation in activities.

Joltin et al., 2003
SR was used to train subjects to recall over the phone the names of their family members.

Cherry & Simmons-D’Gerolamo, 2004
SR was used to train subjects to recall names of household objects.

Hawley & Cherry, 2004
SR was used to train subjects to recall names of unfamiliar people.

Hochhalter et al., 2004
SR was used to train subjects to recall names of medications.

Neundorfer et al., 2004
SR was used to train subjects with HIV to improve performance on self-selected functional tasks by using memory aids.

Cherry & Simmons-D’Gerolamo, 2005
SR was used to train subjects to recall everyday objects.

Fridriksson et al., 2005
SR was used to train subjects with aphasia to name objects.

Hochhalter et al., 2005
Two studies were conducted to determine if SR is more effective than other schedules of practice.

Hopper et al., 2005
This systematic review evaluated 15 studies to support the use of SR training for those with dementia.

Melton & Bourgeois, 2005
Subjects with brain injury were effectively trained using SR over the telephone.
Turkstra & Bourgeois, 2005
SR and errorless learning were used to train a person with profound anterograde amnesia to meet functional memory goals.

Balota et al., 2006
Various schedules of practice were used to train subjects to recall word pairs from the Tulving and Thomas test.

Fridriksson et al., 2006
SR, errorless learning, and massed practice were used to train subjects with aphasia to name objects.

Morrow & Fridriksson, 2006
SR with fixed- and randomized-intervals was used to train subjects with aphasia to name target items.

Bourgeois et al., 2007
SR and teaching instruction were used to train subjects with brain injury over the telephone.

Karpicke & Roediger, 2007a
The spacing effect was used to teach subjects word lists across multiple study and test trials to examine the effects of testing on multi-trial free recall.

Karpicke & Roediger, 2007b
SR and expanded retrieval were used to teach subjects vocabulary from the GRE.

Kinsella et al., 2007
SR was used to train subjects to perform memory tasks.

Vance & Farr, 2007
The implications for use of SR by nurses were discussed.

Bishara & Jacoby, 2008
SR and the spacing effect were used to teach subjects word pairs.

Ellmore et al., 2008
The authors concluded that different amounts of processing times may be required to retrieve explicit and implicit memories.
Hawley et al., 2008
SR and expanded retrieval were used to train subjects to recall name–face associations.

Hickey & How, 2008
SR was used to train subjects to read staff nametags to assist with name recollection.

Karpicke & Roediger III, 2008
Effects of repeated studying and testing on learning were examined by teaching subjects a list of foreign language vocabulary words under different conditions.

Lee et al., 2008
SR was used to train Korean subjects to recall high imagery words.

Logan & Balota, 2008
SR and expanded retrieval were used with younger and older adults, and both groups experienced substantial benefits, regardless of which form the SR took (expanded or equal interval practice).

Ozgis et al., 2008
SR and standard rehearsal were used to train subjects to perform regular and irregular tasks on a virtual board game.

Pavlik & Anderson, 2008
Three learning conditions were used to teach subjects Japanese/English vocabulary words using an algorithm to derive decision criteria for increasing or decreasing spacing.

Thivierge et al., 2008
SR and errorless learning were used to train subjects to perform telephone related tasks.

Bier et al., 2009
SR and formal semantic therapy were used to train one subject to name items from pictures.

Cherry et al., 2009
SR was used to train subjects to recall face–name associations. Booster sessions were developed in this study.

Gonzalez et al., 2009
Errorless learning was used in combination with medication to improve item naming.
Neely et al., 2009
SR was used to examine the effectiveness of a collaborative memory intervention with the subjects and their care partners.

Cherry et al., 2010
SR was used to train subjects to recall name–face–occupation associations.

Hopper et al., 2010
The effects of SR on the learning of new and previously known associations were examined.

Lin et al., 2010
SR and Montessori-based activities were used to decrease eating difficulties.

Sumowski et al., 2010
Massed practice, spaced study, and spaced testing were used to train subjects with multiple sclerosis to improve memory performance.

Sumowski et al., 2010
Mass practice, spaced study, and retrieval practice were used to observe which procedure is more efficient in improving memory performance of subjects with brain injury.

Vance et al., 2010
The implications for use of SR by social workers were discussed.

Haslam et al., 2011
SR and EL were used to train subjects with dementia and brain injury to recall face–name associations.

Karpicke & Bauernschmidt, 2011
College students were studied to observe spacing schedules and patterns of response times and the relationship between patterns of response times and final recall.

Karpicke & Blunt, 2011
College students were studied to show that practicing retrieval produces more meaningful learning than elaborative studying with concept mapping.
Hunter et al., 2012
SR was used to resolve problem behaviors of subjects in a care facility in Australia. The study also examined how SR can be transferred to staff in an aged care facility once it has been implemented with residents with dementia.

Small, 2012
Three SR conditions were used to train subjects to recall face–name associations, object–word associations, and current events.

Wu & Lin, 2013
Subjects decreased depressive symptoms and improved nutrition through SR combined with Montessori-based activities.

Sumowski et al., 2013
Massed restudy, spaced restudy, and SR were used to teach word pairs to subjects with multiple sclerosis.

Han et al., 2014
Subjects learned to recall words derived from the USMART app.

Hopper et al., 2013
Cognitive training in the form of errorless learning and SR was positively reviewed with respect to memory.

Sumowski et al., 2014
Massed restudy, spaced restudy, and SR were used to teach word pairs to subjects with brain injury.

Benigas & Bourgeois, in press
SR and a continuous visual cue were used to teach subjects effective compensatory strategies for swallowing.