

IMPROVING MEMORY USING THE SPACED RETRIEVAL TECHNIQUE

Megan L. Malone, M.A. CCC-SLP

Kent State University

Jennifer Loehr, M.A. CCC-SLP

HealthPro Rehab

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Objectives

- Define the Spaced Retrieval technique.
- Describe a model of memory that supports learning in persons with cognitive deficits
- Develop 2 appropriate goals incorporating the spaced retrieval technique to case study examples.

Assumptions About Dementia

- Individuals with dementia cannot learn or remember information
- Best way to care for persons with dementia is to make them comfortable, accept their idiosyncrasies, and be patient with them

Research Tells Us...

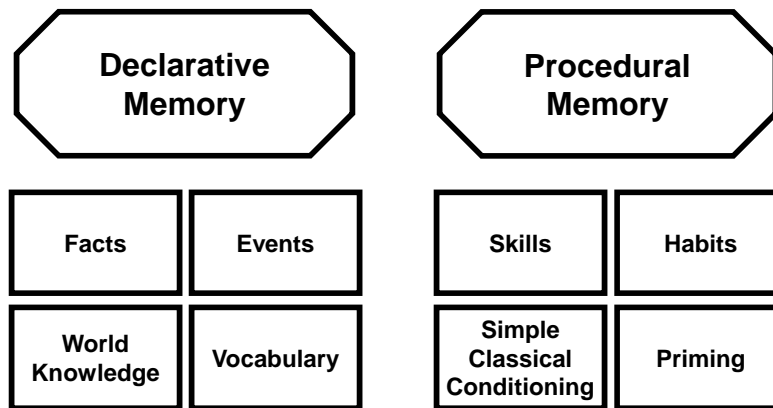
- Dementia is the loss of mental functions involving thinking, memory, reasoning, and language to such an extent that it interferes with a person's daily living.
- Dementia is a group of symptoms that can include:
 - ▣ **Language disturbances** (e.g., aphasia, dysphasia, anomia)
 - ▣ **Problematic behaviors** (e.g., repetitive questioning, wandering)
 - ▣ **Difficulties with activities of daily living** (e.g., dressing, personal grooming)
 - ▣ **Personality disorders** (e.g., disengagement, aggressive behaviors)

Research Tells Us...

- Persons with dementia do have weaknesses in the areas of learning and memory **BUT** a number of strengths exist as well.
- Research has shown that the learning of information and its retention depends heavily on how it is presented.

Memory

(Squire, 1994)



THE SPACED-RETRIEVAL TECHNIQUE

The Spaced-Retrieval Technique

- Refers to practice at recalling information over progressively longer intervals of time
- First noted by Landauer and Bjork (1978) as an effective way to teach face/name learning to students.
- Several studies since have shown the use of SR to be an effective way to teach information to persons with dementia.

The Spaced-Retrieval Technique

- **The goal of SR:**
- To enable individuals to remember information for long periods (days, weeks, months, years) so that they can achieve long-term treatment goals.
- Therapists teach clients strategies that compensate for memory impairments, using procedural memory, including reading and repetitive priming.
- In addition, SR uses *external aids* to compensate for memory

Why Does Spaced-Retrieval Work?

- **It capitalizes on retained components of procedural memory**
 - ▣ Ability to learn skills/habits
 - ▣ Ability to use previously learned habits, such as reading
 - ▣ Repetition priming (learning through practice)

The Spaced-Retrieval Technique

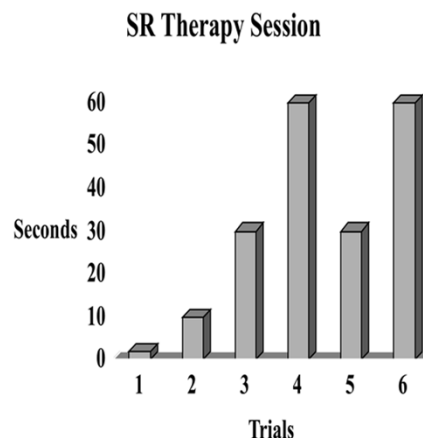
- Begin with a prompt question for the target behavior and train the client to recall the correct answer
- When retrieval is successful, the interval preceding the next recall test is increased.
- If a recall failure occurs, the participant is told the correct response and asked to repeat it
- The following interval length returns to the last one at which recall was successful.

SR Example

- **SR Goal:** 'R' will learn location of room to decrease wandering into unsafe areas by correctly recalling room number at the beginning of 3 consecutive therapy sessions using SR.
- **Information to be :** Facility room number
- **SR Prompt :** What is your room number?
- **SR Response:** 208

SR Example

- **Trial 1 (0 Seconds):** Client Responds *CORRECTLY*
- **Trial 2 (10 Seconds):** Client Responds *CORRECTLY*
- **Trial 3 (30 Seconds):** Client Responds *CORRECTLY*
- **Trial 4 (60 Seconds):** Client Responds *INCORRECTLY*
- *Therapist provides client with correct response ("208"), asks the client the prompt question again, allows the client to respond, and returns to the interval at which the client was last successful.*
- **Trial 5 (30 Seconds):** Client Responds *CORRECTLY*
- **Trial 6 (60 Seconds):** Client Responds *CORRECTLY*



SR Case Study

- 82 year-old female; Diagnosis: dementia; residing in a LTC facility
- MMSE: 12/30
- Repetitive question asking
- **SR Goal:** 'R' will consistently utilize strategy of looking at visual cue to recall facility meal times in order to increase independence and decrease repetitive question asking 80% of trials.
 - **SR Prompt :** *"Where should you look to find out when meals are served?"*
 - **SR Response:** "I look at my card"; performs strategy of taking card from purse and reading it to know meal times.

SR Case Study: Video Example



SR Solutions: Prompt Question/Answer Examples

□ **Disorientation**

- ▣ *"Where do you live?" (Answer: Name of Facility)*
- ▣ *"What is your room number?" (Answer: Room #)*
- ▣ *"What is your address?" (Answer: Client's address)*

□ **Occupational Therapy**

- ▣ *"What should you do before you stand?" (Answer: Lock wheelchair brakes")*
- ▣ *"How should you stand from the commode?" (Answer: Push up using the bars")*
- ▣ *"What is the first step for putting on your shirt?" (Answer: "My right arm first")*
- ▣ *"What do you use to carry things?" (Answer: "Walker bag")*

SR Solutions: Prompt Question/Answer Examples

□ **Repetitive Questioning**

- ▣ Dependent upon question being asked

□ **Naming**

- ▣ *"if you don't know the name of something what should you do?" (Answer: Describe it")*
- ▣ *What is your husband/wife/son's name? (Answer: Target name)*
- ▣ *Who runs the activities here? (Answer: Staff member's name)*

□ **Disengagement**

- ▣ *What can you read to remind you of your family? (Answer: Read my memory book")*
- ▣ *What can you check to see what is planned for the day? (Answer: Activity Schedule")*
- ▣ *What can you look at to find something to do? (Answer: "My list of activities")*

Is SR Right for Every Client?

- ❑ Complete Screening Process
 - Quick and Easy
 - Tests clients' responses to correctly recall a target name over 3 different time intervals (immediately after presentation, 10 seconds later, and 15 to 20 seconds after that)
 - Client has 3 trials at each time interval to recall the target name correctly to pass the screen
 - **CAN FOLD SR SCREEN INTO INITIAL CLIENT EVALUATION/ADMISSION INTERVIEW**

The SR Screen

A. Spaced-Retrieval Screen

(At each Trial, score as follows:
Correct response = + Incorrect response = - and
Record observations /
what the participant says that's useful)

Start the Screening by saying:

"Today we are going to practice learning how to remember things better. We'll start by practicing remembering the name of this person." [Show photograph]

Step 1 Say:

"Her name (first and last) is Peggy Bailey."

What is her name?"

Trial 1 2 3

Observations:

Incorrect: Wait for about a minute, chatting with the participant, and then do a second trial of **Step 1**.

If incorrect on a second trial of **Step 1**, wait for about a minute, chatting with the participant, then do a third trial of **Step 1**.

If incorrect on a third trial of **Step 1**, then
PROCEED DIRECTLY TO "EXIT LINE."

[If correct at **Step 1** on any trial, say:

"That's right. I am glad that you remembered."
THEN, Go to **Step 2**.

Step 2 (SHORT DELAY -- about 10 seconds) Say:

"Good. I will give you more chances to practice as I am working with you today. Let's try again. What is her name?"

Trial 1 2 3

Observations:

Incorrect: Record response and go back to **Step 1** for a second or third trial at **Step 1**.

If incorrect on a third trial of **Step 2**, then
PROCEED DIRECTLY TO "EXIT LINE."

[Correct: Say:

"That's right. I am glad that you remembered."

THEN Go to **Step 3**.

Step 3 (LONG DELAY -- about 15-20 seconds) Say:

"You are doing well remembering her name for a longer period of time, and that's the idea. I would like you to always remember her name. I will be practicing this with you during therapy by asking you often. So, what is her name?"

Trial 1 2 3

Observations:

Incorrect: Say:
"Actually, her name is Peggy Bailey. What is her name?"

Go back to **Step 2**.

If incorrect on a third trial of **Step 3**, then
PROCEED DIRECTLY TO "EXIT LINE."

[Correct: Say:

"That's right you are remembering for a longer period of time. You did a great job remembering her name. We are going to continue practicing this later today."

If you reach this point, continue with the study protocol.

EXIT LINE: "Thanks for trying so hard. Let's work on something else now."

If the client has not mastered **Step 1**, **Step 2**, and **Step 3** successfully, try again on another day using a card with the name printed on it.

If the client fails the second screen, start therapy WITHOUT doing more screening for the study. DO NOT ENROLL a person in the study who has not passed this Spaced-Retrieval screen.

What Happens After the First SR Session?

- The therapist begins (**Trial 1** of the next session) by asking the client the prompt question and seeing if the client is immediately able to give the correct response. This provides the client with an opportunity to demonstrate recall since the last treatment session, which may be 24 hours or more.

When is an SR goal considered mastered?

- If a client is able to correctly respond to the prompt question and/or perform the targeted strategy at the beginning of **3 consecutive therapy sessions**, the goal is considered mastered.
- It is important to make sure that the client is **consistently** performing the targeted strategy or response before discharging the goal.

How much SR training does a client usually need?

- The amount of training required by a client will vary.
 - The number of sessions is dependent upon
 - Level of cognitive impairment of an individual client
 - Frequency of the sessions
 - Number of goals are being addressed using SR.

Clients enrolled in more frequent SR treatment sessions (i.e. 5 days/ week vs. 2 days/week) are likely to attain their goals more quickly.

SR Research Results: R01 AG17908

- Persons with dementia can master a wide variety of clinically relevant goals in therapy delivered by Speech-Language Pathologists.
- In this study, SR was more effective in allowing persons with dementia to master goals than BP (67% of goals attempted were mastered for SR vs. 57% for BP; BP=Best Practice)
- Training materials and protocols for implementing SR have been developed that can allow dissemination of this therapy technique on a large scale.

SR Research: R01 AG17908S1

A 1-year research project designed to:

- Train staff at HCR centers in the application of Spaced Retrieval (SR) using the train-the-trainer model
- Assess the effects that the training has on various outcome measures for dementia residents at each center
- Examine the impact that SR training has on the existing system/infrastructure of participating centers.

SR Research

- After implementation of the SR training, ST caseload included residents with **more cognitive impairment** than those seen prior to implementation.
- 42 goals were attempted and 32 (76%) were mastered; at one-month posttest, mastery was **maintained for 71% of goals** mastered previously.
- Data from two facilities over a six-month period indicated that the number of long-term residents receiving speech therapy **increased** after implementation of the program
- Speech therapy caseload included a **higher percentage** of long-term residents with dementia.
- At one facility, MDS-based Cognitive Performance Scale scores of speech therapy clients were significantly lower after implementation of the program, indicating therapy was now being provided to residents with more severe impairment.
- We also found therapists starting to use SR successfully for clients who **did not** have dementia.

SPACED RETRIEVAL CASE STUDIES

Occupational Therapy Case Study 1

- 79 year-old female residing at an assisted living facility
- Diagnoses include recent hip fracture, dementia, type 2 diabetes, COPD, high blood pressure
- Seen by home health care agency by PT and OT
- OT goals include recalling hip precautions (high fall risk), energy conservation techniques, and use of adaptive equipment for ADL's

Occupational Therapy Case Study 1

- SR Goal Examples:
- “Pt. will recall use of wheelchair footrests in order to increase proper healing of recent hip fracture during the first trial of 3 consecutive sessions using spaced retrieval”.
- SR Prompt: “Where should you always try to keep your feet for your hip to heal?”
- SR Response: “On the footrests”

Occupational Therapy Case Study 1

- SR Goal Examples (continued):
- “Pt. will recall and demonstrate proper use of adaptive equipment (dressing aids) to increase safety during lower body dressing 80% trials using spaced retrieval”
- SR Prompt: “What should you use to help put on your socks?”
- SR Response: “My sock aid”
- SR Prompt: “Show me how to put your socks on safely.”
- SR Response: Pt. demonstrates correct use of sock aid to don socks

Occupational Therapy Case Study 1

- SR Goal Examples (continued):
- “Pt. will recall and demonstrate proper use of bathing aids (hand held shower; long handled sponge) to increase independence in showering 70% of trials with minimal assist”
- SR Prompt: “What should you use to help you wash in the shower?”
- SR Response: “The hand held shower and long sponge”
- SR Prompt: “Show me how to use the hand held shower head”; “Show me how to use the sponge”
- SR Response: Pt. demonstrates proper use of equipment

Occupational Therapy Case Study 1

- “Pt. will recall strategies to improve energy conservation to increase stamina and decrease likelihood of fall risk 8/10 trials using spaced retrieval”
- SR Prompt: “How should you get an item that you need?”
- SR Response: “Push or slide it. Try not to lift”
- SR Prompt: “Where should you try to keep the things you need most?”
- SR Response: “Shoulder or Waist Level”

Occupational Therapy Case Study 2

- 62 year old male; diagnosis dementia; residing in assisted living facility
- Getting lost in facility...wandering in rooms
- SR Goals: Mr. C will use environmental cues to locate dining room and find his way back to his own room without wandering into any other rooms.
 - SR Prompt: “When you need to find your way, what do you do?”
 - SR Response: “I look for the pigeons”

Spaced-Retrieval Goals

- Goal possibilities are endless
- SR goals are NOT written any differently than other goals.

■FUNCTIONAL GOAL = SR GOAL

SR & Documentation

- SR is considered to be a MODALITY or APPROACH that therapists may use to help clients reach their goals.
- SR does not fit one particular diagnosis category
 - Use the ICD 9 Code that corresponds to the goal area you are addressing

SR Session Details

- Questions to ask yourself when preparing to begin S-R with a client:
 - What are the problem behaviors being exhibited?
 - What are the strengths of the client? What are the weaknesses (physical impairment, vision, etc.)?
 - What prompt question will be used and is it and the answer meaningful for the client?
 - What other staff/family members will be involved in the training/carryover?

Spaced-Retrieval Goals

- Measurement of goal attainment can be by percentage (“80% of time”) or by recalling and demonstrating target response for a set number of sessions (3 sessions recommended) depending on the type of goal.
 - ▣ “Client will recall and demonstrate the ability to use adaptive utensils (e.g., cups, plates, fork, spoon) to promote independence, with minimal verbal cues, 80% of trials.”
- OR**
- ▣ “Client will demonstrate strategy of locking wheel chair brakes prior to standing to increase safety at the beginning of 3 consecutive therapy sessions using SR”

SR & Documentation

- Use data sheets to track your client’s progress
 - ▣ Also to keep track of prompt questions/answers for each client
- Use a timer during sessions to accurately document progress toward goals

SR: An Interdisciplinary Process

- Caregiver/Family Input:
 - Consult with family/caregivers for possible goal ideas = INCREASES BUY IN AND COOPERATION
 - Work on incorporating the family's personal goals if possible
 - If working on a goal focused on remediating a "challenging behavior" demonstrated by the client, be sure that the behavior and its frequency are documented in the nurse's notes to illustrate presence of problem and need for rehab service.

Triaging the Use of SR

- Which residents should you begin with?
- How many residents should initially aim to work with?
- What are good initial goals to begin with?
- How can we incorporate SR into activities programming?

Questions?

Thank You!

For additional information please contact us:
meganmalone1025@gmail.com or
jennyloehr65@gmail.com

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