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Oregon Association for Family & Community Education Conference

October 2007
Klamath Falls, Oregon

Memory Challenge

Leader's Guide

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MEMORY CHALLENGE

Leaders guide:

- Remember to involve the audience in this lesson by asking them questions.
- Have a memory exercise during the lesson such as the card game “concentration” or sudoku
- Refer to page numbers in the member handout for important items you wish to highlight as you go through the lesson.
- Give examples of storage, deletion and retrieval.
- Bring examples of memory games.

During this lesson we will learn about memory and the function of our brain

What is memory? How are memories made? How are they stored? How are they retrieved?

What can we do to maintain a healthy brain and memory?

What factors contribute most to memory loss?

We’ve all heard the old adage, “You can’t teach an old dog new tricks”, don’t believe it!

We learn easiest in the first two decades of life. Our brains grow especially rapidly until the tenth year, then more slowly for the next ten years. Our only “job” during this period is to learn. Then during the middle years of life (from our twenties until retirement), we work, raise children and develop security for later life. We usually don’t think of this as a time for continued learning and many of us get out of the habit of taking on new intellectual challenges.

However, research indicates that old dogs can learn new tricks. The brain responds to mental exercise like a muscle responds to physical activity. Studies show that rats provided with an enriched environment (such as having their toys changed frequently) grow thicker cerebral cortexes with more nerve cell branches and more connections. Rats living without such enrichment have cerebral cortexes that actually shrink as connections are lost.

The stimulated animals ran a maze faster than their unstimulated kin, indicating that brain activity makes for a more effective brain. It was discovered that 900 day-old rats could still add to their cortexes when put in the enrichment cage. This age in a rat is equivalent to 80-90 years for a human. We are never too old to learn and to benefit from learning.

Studies indicate that the more we challenge our brain, the better we may be able to face the very real mental and emotional problems of old age. The most important thing to remember is that to enrich our brain it must be **challenged**.

We must learn new things, rather than repeating what we already know. Our brains are designed to respond maximally to what is new and difficult and minimally to what is familiar. We should start now to challenge our brains with new tasks, such as learning a new language, learning to play a musical instrument, doing mental arithmetic, and yes, even becoming computer literate.

Surprisingly we have a remarkable degree of control over our most valuable organ. So, it is up to us to develop and use our brains to the fullest.

The human memory is a highly complex neurological system. In psychology, memory is an organism's ability to store, retain, and subsequently recall information.

Think of the memory as a computer or video camera. The mind records events during a person's lifetime but it is impossible for the brain to store complete details of every event. It simply does not have the storage capacity to hold that amount of data

When we recall a memory, our mind will automatically "flesh out" the recollection by inventing details of the event. Much like eye-witnesses do not see the same scene during a crime.

What is memory?

The mental facility that allows us to retain information as well as recall experiences from a long time ago is known as memory.

There are several ways to classify memories, based on duration, nature and retrieval of information.

There are three memory types, sensory memory, short-term and long-term memory,

Sensory memory:

Memory is not confined to the brain rather it is distributed through out the body. For example, the foot has an elementary brain that will automatically operate the accelerator of a car in order to keep the car moving at a constant speed without any conscious involvement of the brain. This is called "muscle memory".

The ability to look at an item and remember what it looked like with just a second of observation, or memorization, is an example of sensory memory..

Some of the information in sensory memory is then transformed to short-term memory.

Short-term memory:

Short-term memory allows one to recall something from several seconds to an hour with out "rehearsal" or "encoding", Short-term decays rapidly and also has a limited capacity. "Chunking" the information can lead to an increase in the short-term memory capacity. This is the reason why a hyphenated phone number is easier to remember than a single long number.

❖ Play a short-term memory game, for an example, see Memory Party Game # 1 at back of Member Handout. The type of memory that is most pervasive, and with the largest capacity, is long-term memory.

Long-term memory:

The storage in sensory and short-term memory generally have a limited capacity and duration, by contrast, long-term memory can store larger quantities of information for potentially unlimited duration sometimes a whole life span.

There are three main activities related to long term memory: storage, deletion and retrieval.

Storage:

Information from short-term memory is stored in long-term memory by rehearsal. The repeated exposure to a stimulus or the rehearsal of a piece of information transfers it into long-term memory storage.

Play a game using repetition of names, places, lists or make up silly stories to help remember a grocery list.

❖ For an example of this kind of game; see Memory Party Game # 2 at back of Members Handout.

Deletion:

Decay and interference mainly cause deletion. Emotional factors also affect long-term memory. However, it is debatable whether we actually ever forget anything or whether it becomes increasingly difficult to access certain items from memory. Having forgotten something may just be caused by not being able to retrieve it. Information may not be recalled sometimes but may be recognized, or may be recalled only with prompting.

Retrieval:

There are two types of information retrieval: recall and recognition. In recall, the information is reproduced from memory. In recognition the presentation of the information provides the knowledge that the information has been seen before.

Memory Recall:

Have you ever forgotten the name of someone you've known for years just as you are about to introduce them? Try as hard as you can to recall that hidden bit of information, it just won't reveal itself.

❖ Try Memory Party Game # 1 at back of Members Handout for an example of memory recall.

Psychologists call this phenomenon a tip-of-the-tongue experience, or TOT. They believe it is linked to the brain's retrieval process. This type of forgetfulness occurs when your brain searches out the wrong but similar word. An example might be; trying to name the dog that rides on a fire engine. You are close if you say Doberman. The correct word, Dalmatian is stuck in your brain somewhere but hasn't made its way to the tip of your tongue

Some researchers think different parts of the brain store bits and pieces of information about the sound of a word. These fragments have to be assembled but when only part of the pieces comes to mind, you may only remember the first letter of a word or recall just its sound. What happens then, you solve the puzzle later—often while lying in bed that night or while out on a walk.

People with the best memories seem to worry the most about having the worst. In fact, medical surveys show that many people perceive themselves as more forgetful than they really are. When Dr. Thomas Crook, director of the Memory Assessment Clinics, had an extensive survey done asking people to rate their abilities at recall in relation to other people, 80 percent rated themselves as worse than average.

Often people who think they have a poor memory have one just as good as the average person in their age group. The ability to remember names and places does decline with age but not dramatically. By age 60, retrieval of bits of information has only declined by 10 percent over what it was at age 30. Even so, more and more people past age 40 who forget names a few times a week are fearful of slipping into senility.

According to Robin West, assistant professor of psychology, University of Florida. "Actually. Those over 60 who forget something forget it for the same reasons they did at 20, plus a little bit of age". Forgetting a name causes people to become unduly alarmed and anxious which in turn causes stress and that makes memory retrieval even more difficult.

Tips to ease the anxiety of TOTs:

1. Prepare ahead when giving a speech or attending a meeting where you may be called upon to speak.
2. Keep focused on the main topic.
3. Place a rubber band around your wrist and snap it when you become anxious about forgetting a name. It will help you focus.
4. When introduced to someone look at him or her not around the room the room. Repeat their name.
5. Do not worry about what people think about you while you're speaking. This anxiety only clutters the retrieval process.
6. The old axiom, "Use it or lose it", applies to memory. Mental stimulation enhances memory and retrieval powers.

Everyone has TOT experiences no matter what their age. Don't get anxious just say, "I'm having a memory Block". They should understand because they probably have them too.

What factors contribute to memory loss?

Memory loss ranges from age-related memory impairment, which is a normal degree of forgetfulness, to mild cognitive impairment to dementia's, such as Alzheimer's disease, that can profoundly affect a person's ability to function.

Although Alzheimer's is irreversible, memory impairment resulting from other causes, such as depression or thyroid problems, diabetes and other medical conditions or medication side effects (it is a fact that older adults take an average of five prescriptions and three over the counter drugs at the same time), can be improved with treatment. So it is important if you begin experiencing memory troubles to have your condition accurately diagnosed.

A certain amount of forgetfulness is to be expected with age. Most people have more difficulty recalling names and words as they get older, so this is by no mean symptomatic of dementia, these memory lapses associated with age-related memory impairment are more likely to occur when a person is tired, sick, distracted or under stress.

Sleep is very important to memory, one of the main functions of sleep is thought to be to improve consolidation of information, it has been shown that memory depends on getting sufficient sleep between training and testing and the brain replays activities from the current day while sleeping.

So remember, you need not worry if you forget where you put your car keys, you only need to worry if you forget what they are used for.

Memory Party Game #1 (An example of short-term memory)

What Do I Need?

- One person to be the Game Master
- A few friends or study group members
- 15-20 different unrelated items—like scissors, a can of beans, a hair brush, a pencil, etc.
- A big towel or cloth that can cover the objects.
- A clock or watch with a second hand
- A piece of paper and a pencil/pen for each player

What Do I Do?

If you are the Game Master gather your objects. Those coming to the party or study group can be asked to bring an object. To be most effective the items should not be related. The Game Master might want to collect some things from the kitchen—like a can opener and a potato masher—and some from the bedroom—like a left shoe and a bow tie.

Either the Game Master can have the items already under cover before the players arrive or have them cover their eyes while the Game Master places the objects on a table or the floor and covers them.

When everyone is ready (eyes open) the Game Master uncovers the objects and everyone has two minutes to memorize all the items.

After two minutes, the Game Master covers the objects again and everyone writes down all the objects they can remember.

Then the Game Master uncovers the objects and everyone can see how well they did. Maybe have a prize for the one who remembers all the items or the one who remembers the most.

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Memory Party Game #2 (An example of long-term memory storage)

What Do I Need?

A group of people--sitting in a circle is best

What Do I Do?

Tell each player to think of a food, animal or mineral that begins with the same letter as their name. an example : Molly and her monkey. The first person starts by saying the following ,
“The FCE president wants (their name) and her/his (the object that begins with the same letter as their name) for an important committee.”

Each person in line repeats the whole phrase said by the player(s) before them and then they add their name and object. To add more excitement, when everyone has had their turn, tell the person who started, “The president is appointing you chairman. She wants us to know the members of the committee so please tell us their names.”

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Dale's Cone of Experience

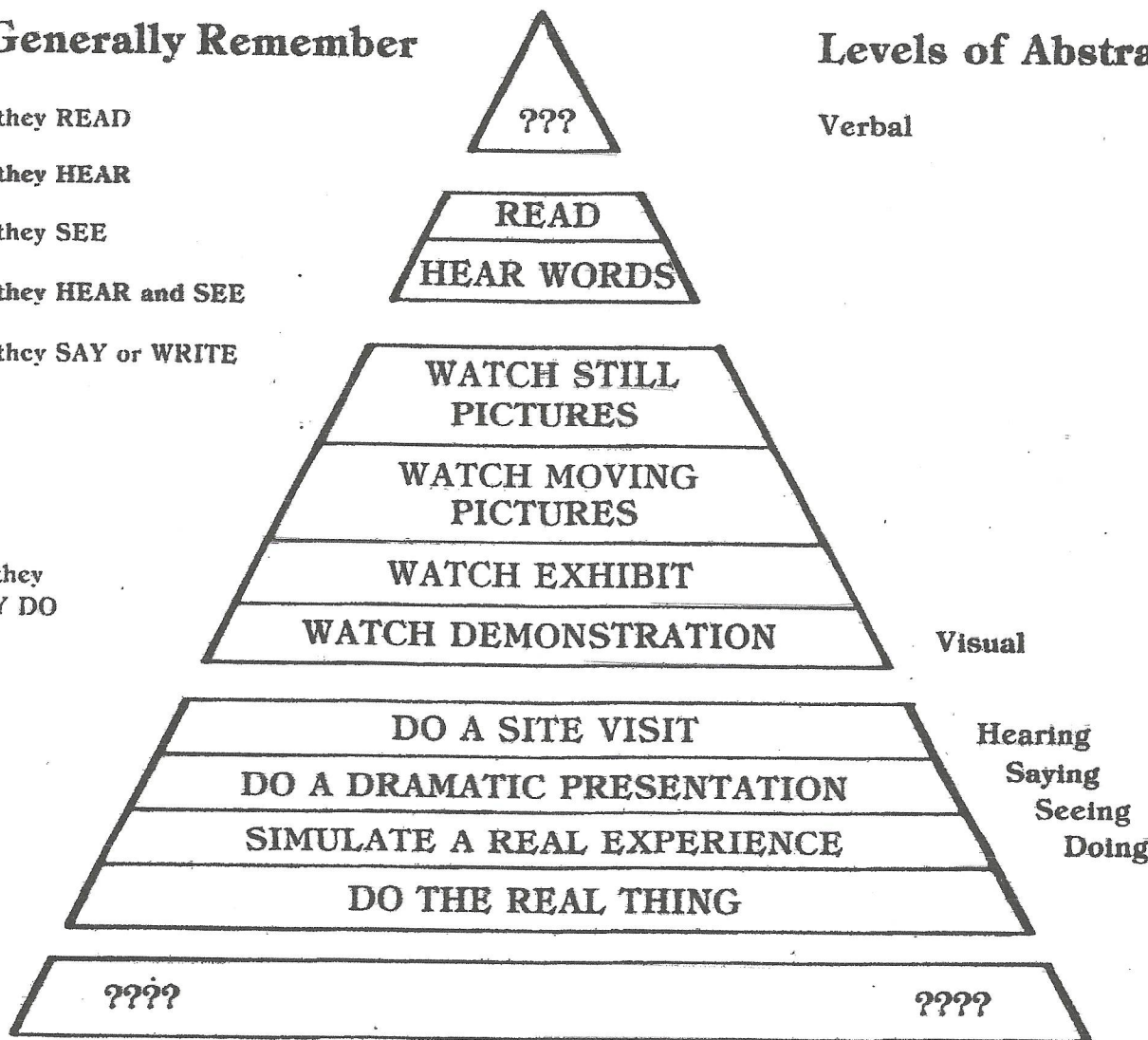
An important learning principle that is supported by extensive research is that persons learn best when they are actively involved in the learning process. Dale's Learning Cone of Experience below shows various learning activities grouped by levels of abstraction. The left column indicates their relative effectiveness as training techniques. These are, however, general principles. Individuals vary greatly in the ways in which they learn best. Some people are visually oriented; they learn best through activities that emphasize reading and seeing slides, movies and demonstrations. Other people are more influenced by what they hear rather than what they see, and still others learn best by doing.

People Generally Remember

- 10% of what they READ
- 20% of what they HEAR
- 30% of what they SEE
- 50% of what they HEAR and SEE
- 70% of what they SAY or WRITE
- 90% of what they SAY AS THEY DO A THING

Levels of Abstraction

Verbal



Reprinted from Wiman & Michenry, *Educational Media*, Charles Merrill, 1969.

MEMORY CHALLENGE

Member's Handout

FOODS AND VITAMINS TO IMPROVE MEMORY AND BRAIN POWER

We eat carrots to give us stronger eyes, fiber to lower cholesterol and vitamins for general health, why not take something for brain health?

Our brain generates larger numbers of free radicals per gram of tissue than any other organ in the body, damaging the cells. Antioxidants protect neurons in our brain by keeping blood vessels supple and open, ensuring the flow of nutrients to the brain.

Sharpen your brain and improve memory functions by eating plenty of fruits and vegetables and taking antioxidants and vitamins

The following is a short list of foods containing vitamins; minerals and antioxidants that keep blood vessels supple and help transport nerve impulses more efficiently.

Behind the name is the largest percentage of vitamins in these foods.

Milk = vitamin B-6

Spinach = Magnesium, Folic acid

Black-eyed peas = folic acid

Acorn squash = Vitamin B6, Potassium

Salmon = B12, Vitamin E

Kidney beans = Folic acid

Orange juice = Calcium, Potassium

Papaya = Folic acid, Potassium

Potato, baked = Vitamin C, Potassium

Broccoli = Folic acid, Vitamin E and B6

Wheat Germ = Vitamin E, Folic acid

Banana = Vitamin B6 and C, Potassium

Vegetable Juice = Vitamin C, B6 and Potassium

Tofu = Magnesium, Folic acid, Potassium

Spinach = Beta-carotene, Vitamin C, Folic acid

Strawberries = Beta-carotene, Vitamin C, Folic acid

Blueberries = Beta-carotene, Vitamin C, Folic acid

There are a lot of vitamins; minerals and antioxidants in your food but if you don't get enough in your foods you may take supplements.

Be wary of ginkgo biloba as too much could cause bleeding in the brain.

What factors contribute to memory loss?

Memory loss ranges from age-related memory impairment, which is a normal degree of forgetfulness, to mild cognitive impairment to dementia's, such as Alzheimer's disease, that can profoundly affect a person's ability to function.

Although Alzheimer's is irreversible, memory impairment resulting from other causes, such as depression or thyroid problems, diabetes and other medical conditions or medication side effects (it is a fact that older adults take an average of five prescriptions and three over the counter drugs at the same time), can be improved with treatment. So it is important if you begin experiencing memory troubles to have your condition accurately diagnosed.

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Tips to keep your memory sharp

- Concentrate and focus on the task at hand, although we are getting good at multi-tasking, if you really want to remember something it's important to give your full attention to a single task.
- Make lists to free up your brain to remember the really important things.
- When meeting someone new, use his or her name several times to help you remember.
- Create association or triggers to help you remember people, tasks.
- Reduce stress, people who are often anxious produce high levels of cortisol, a stress hormone and studies have shown that sustained cortisol levels can damage brain cells and impair mental functions.
- Get a good nights sleep, this is nature's way to reduce stress and allows your body to recharge.
- Exercise your brain, by activities that use your brain, games, crossword puzzles, discuss current events
- Spend time with family and friends, maintain an active social life, do volunteer work etc
- Include exercise into your daily life, exercise and cardio-vascular exercise, in particular, strengthens your heart and keeps the blood flowing to your brain. The more oxygen your brain receives the better able your brain is to function.
- Fill your grocery basket and your body with healthy foods, research has shown that the same processes that clog your arteries can also damage the delicate communication network in the brain.
- Take your vitamins, although it is best to try to get all the vitamins and minerals from food, we are not always able to eat the right foods for our bodies and brain so it becomes necessary to take supplements.

Memory Games

Have you ever looked up a telephone number and repeated it to yourself until you dial the number?

This draws on your "working" memory, however just moments after you have dial it you may have forgotten the number, this is because it was not committed to your "long-term" memory. While "working" memory is reliable for quick recall it can only hold a few pieces of information for a very short time

❖ For an example try the Memory Party Game #1 at back of Members Handout.

You can have fun while committing information to “long-term” memory, if you process information in a story or song or poem form, it tends to stay in “long-term” memory longer.

❖ An example of this type of game is Memory Party Game # 2 at back of Members Handout.

Card games like: “Concentration”, “Old Maid”, “go Fish”, Solitaire, Crazy Eight, Phase 10(this is also a dice game now), Canasta, Bridge, Pinochle.

Crossword puzzles, Sudoku, brainteasers, Anagrams, Scrabble, Hang Man, Rootonyms and Word Search word games, trivia games and Sceneit (a DVD game using a TV) are only a few things you can do to help keep your brain agile.

Studies have proved that “mental aerobics” such as crossword puzzles, etc which requires daily, sustained bursts of cognitive effort are particularly effective in helping prevent memory loss and are an important part of a healthy lifestyle and can minimize the risk of developing neuro-degenerative diseases such as alzheimers

Math games might include, Number Search, Sudoku, Cribbage, Tri-Ominos, and exercises that use numbers, like keeping score for Bunco, Golf or Bowling.

Strategy games would include Monopoly, Battleship, and Mexican Train.

Other ways to keep your memory sharp and develop your concentration skills are, assemble puzzles, learn to knit/crochet a new or more complicated pattern, read newspaper or magazine articles backwards, take a different route to work, mall or a friends house, take a different route home from someplace you go regularly or learn a new craft or skill.

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“ Challenging the Brain to Stay in Shape”

by Arnold Scheibel

Dr. Thomas Crook, director of Memory Assessment Clinics

Alan Brown, associate professor of psychology, Southern Methodist University and author of “How to Increase Your Memory Power”.