The Study of Cognitive Rehabilitation Effectiveness

The SCORE clinical trial is a randomized controlled treatment trial evaluating the effectiveness of cognitive rehabilitation in post-deployment military service members who sustained a concussion.

Chapter 4: Traditional Cognitive Rehabilitation for Persistent Symptoms Following Mild Traumatic Brain Injury (SCORE Arm 3)

Part IV: Client Manual for Arm 3 Traditional & Arm 4 Integrated Cognitive Group Interventions

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Congress established DVBIC in 1992 after the first Gulf War in response to the need to treat service members with TBI. DVBIC's staff serves as the Defense Department's primary TBI subject matter experts. DVBIC is part of the U.S. Military Health System and is the TBI operational component of the Defense Centers of Excellence for Psychological Health and Traumatic Brain Injury (DCoE). Learn more about DVBIC at dvbic.dcoe.mil.

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SCORE Disclaimer

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Chapter 4:
Traditional Cognitive Rehabilitation for Persistent Symptoms Following Mild Traumatic Brain Injury (SCORE Arm 3)

Part IV:
Client Manual for Arm 3 Traditional & Arm 4 Integrated Cognitive Group Interventions

Introduction

Enclosed within the covers of this manual is a lot of food for thought about cognitive rehabilitation. This manual will help you understand the central themes of human thought, ranging from maintaining your attention to a task, to organizing your day, to learning new information. The manual is divided into six major parts, or themes:

1. Goal Setting
2. Sustained and Selective Attention
3. Memory and Learning
4. Planning and Organization
5. Prospective Memory and Assistive Technology
6. Alternating and Divided Attention

You will be exploring these themes in group therapy sessions twice a week and in individual treatment sessions with your clinician 5 days a week. What you will be learning on each day is spelled out in this manual. For example, when you meet with your clinician on the first day of the Sustained and Selective Attention theme, you will be working on understanding what attention is and how to optimize your attention to task.

1: Goal Setting

Session 1: Setting Goals

Setting goals can be a complex process; however, it can also become quite easy once you get the hang of it. The first thing you must do when setting goals is to prioritize your goals. Do this by determining the areas of your life most important to you. For instance, if financial goals are most important to you, begin with that area.

Long-term goals vs. short-term goals

- **Long-term goals.** Goals that may take from 6 months to years to complete
- **Short-term goals.** Goals you want to complete immediately, within weeks to the next few months

Why is it important to differentiate long-term from short-term goals?

Short-term goals are often associated with the long-term goal. In other words, short-term goals can be specific steps that lead to the completion of a long-term goal.

Example: Long-term goal: Lose 12 pounds in one year. Short-term goal: Lose 1 pound a month.

Short-term goals allow you to make frequent progress towards your long-term goal and, therefore, make you more likely to reach that long-term goal. You may also set tasks or sub goals that can help you reach your short-term goal.

Example: Task 1: Go to the gym three times a week. Task 2: Record the calorie intake into food diary daily

Identify the following as either a long-term goal (LTG) or short-term goal (STG). LTG or STG?

1. Go to medical school
2. Pay off your mortgage
3. Put $100 a month into college fund
4. Increase military rank
5. Budget to begin savings account
6. Save four times monthly salary

Creating S.M.A.R.T. goals[1]

Specific
Measurable
Attainable
Realistic
Timely

Specific. A specific goal has a much greater chance of being accomplished than a general goal. To set a specific goal, you must answer the six "W" questions:

*Who: Who is involved?
*What: What do I want to accomplish?
*Where: Identify a location.
*When: Establish a time frame.
*Which: Identify requirements and constraints.
*Why: Specific reasons, purpose or benefits of accomplishing the goal.

EXAMPLE: A general goal would be, "Get in shape." A specific goal would say, "Join a health club and work out 3 days a week."

Measurable. Establish concrete criteria for measuring progress toward the attainment of each goal you set. When you measure your progress, you stay on track, reach your target dates, and experience the exhilaration of achievement that spurs you on to the continued effort required to reach your goal.

To determine whether your goal is measurable, ask questions such as How much? How many? How will I know when it is accomplished?

Attainable. When you identify goals that are important, you begin to think of ways to achieve them. You develop the attitudes, abilities, skills, and financial resources to achieve each goal you identify as important. You begin to realize opportunities that bring you closer to achieving your goals.

You can achieve any goal you set by planning wisely. Establish a time frame that allows you to carry out each step of you plan. Goals may appear out of your reach. However, as you work to achieve them, your goals become attainable. Listing goals can help build your confidence.

Realistic. To be realistic, a goal must represent an objective toward which you are willing and able to work. A goal can be set with high expectations and still be achievable. You decide just how high your goals should be set. A goal set with high expectations can be easier to achieve than a goal set with low expectations, because the lower you set your expectations, the lower your motivation.

Your goals will be realistic if you truly believe they can be achieved. You might find it helpful to use the achievement of your past goals to determine whether current goals are realistic.

Timely. Goals should be set within a time frame. With no time frame set, you might not have a sense of urgency when working to achieve your goals. For example, if you want to lose 10 pounds, determine an acceptable period of time during which to lose the weight. "Someday" simply won't work. However, if you anchor your goal to a set time (i.e., "by May 1st"), you are more likely to achieve your goal.

T can also stand for **Tangible.** A goal is tangible when you can experience it with one of the senses, that is, taste, touch, smell, sight or hearing. When your goal is tangible you have a better chance of making it specific and measurable and thus attainable.

SMART Goal Example

Original Goal

Decrease credit card debt

SMART GOAL

Decrease credit card debt by 75 percent in 12 months.

1. Pay an additional $200 dollars a month on credit card bill.
   Tasks: Add $200 to credit card bill on monthly budget spreadsheet

2. Charge only hotels and flights to credit card.
   Tasks: Keep receipts on file, carry only while traveling

3. In addition to required minimum payment and extra $200, include any charges to credit card in monthly payment.
   Tasks: Review invoice before each payment to determine what was charged; turn off automatic payment in order to adjust payment total each month

Benefits of setting goals

- **Improve Clarity and Purpose.** To be able to set goals, you must have an idea of what you want to do or where you want to go throughout your life. Setting goals helps this path become clearer.
- **Decrease Stress and Improve Peace of Mind.** The uncertainty of what lies ahead in life (weeks to years) can often be stressful. Setting goals can decrease uncertainty and give one a greater peace of mind about what lies ahead. This can lead to decreased stress.
- **Increasing Productivity and Efficiency.** Following your goals and the steps you must take to reach those goals often helps you maintain focus on what is important. You are less likely to waste time if you follow your path to achieving your goals.
- **Improve Self Confidence.** Setting goals and reaching them improves your confidence in your ability to control what you want to achieve in life. Even if you don't reach the goal, the fact you developed a plan and tried your best gives you confidence to keep trying.
- **Increase Enthusiasm and Motivation.** Setting clear goals can increase enthusiasm and motivation to accomplish them. People are often very motivated once they initiate new goals.

Remember to write your goals down. Also remember to check them frequently (daily/weekly) to keep you motivated and to allow you to make necessary modifications to goals as soon as possible. The sooner you notice the need to adapt a goal, the sooner you can continue on your track to achievement!

Specialist Smith case study

Specialist Smith was injured in an improvised explosive device (IED) blast to a mine-resistant ambush-protected (MRAP) vehicle 9 months ago, resulting in a concussion and a fracture to the hand. Specialist Smith works in the motor pool and complains his job has become more difficult. He thinks he is spacing out at work. He has difficulty figuring out what to do when asked to do simple things, such as determining when to change the oil in the truck fleet. He forgets to complete vehicle inspections on time. During peak times at work, Specialist Smith frequently mixed up repair orders for different vehicles. He thinks the difficulty is due to answering the office phone, responding to emails and attending to people in the office at the same time.

Specialist Smith has difficulty managing his work schedule around his bi-weekly Occupational Therapy appointments for his hand rehabilitation. He attends approximately one-half of his scheduled appointments. Often, Specialist Smith remembers his appointments 15 minutes after the scheduled start time.

Specialist Smith also frequently misplaces his hat and keys at home. Sometimes he forgets to take his morning and evening medications. He reported no thinking difficulties prior to his injuries in May.

Specialist Smith is married and the father of two children, ages 5 and 2. He and his family reside on post. In the near future, the Smiths want to buy their own home near good schools. Specialist Smith is unsure if he can afford to make this move. He reports limited income and excessive credit card debt. He reports he has lost control of what and to whom he owes since his injuries. He wants to be the family financial manager because his wife is "worse with numbers than I am."

Specialist Smith desires to get an associate degree in criminal justice. He failed a history course 2 months ago. He had difficulty retaining the large amount of information needed to pass the course. He spaced out during the lectures and became easily distracted by many things to include noises outside the classroom windows and thinking about his plans for dinner. He was also distracted when studying at home because his home has an open floor plan, and he could not concentrate while the kids were playing in the living room. When he attempted to study after the kids went to bed, he often ran out of time because he would not begin his assignments until very late at night. Furthermore, Specialist Smith did poorly in school because he had to read the information over and over again to understand it.

Specialist Smith is in charge of getting dinner started, a task he previously enjoyed. He no longer enjoys cooking because he often burns the food, forgetting he has something on the stove. When cooking, he often gets distracted by tasks including answering supervisor's text messages, folding laundry and helping children with homework.

Are these good goals?

Look at the goals written by Specialist Smith below and determine whether they are good goals. Identify and write three reasons you would change this goal by each bullet, and then rewrite a new goal.

Remember, are the goals SMART? *Refer to Specialist Smith case study if necessary.*

I will obtain my MBA, Masters of Business Administration.
① not realistic, he still has to obtain his associate degree
②
③
NEW GOAL:
I will pay off credit card debt.
①
②
③
NEW GOAL:
I will have dinner ready by 6 p.m. each night.
①
②
③
NEW GOAL:

Setting personal goals

For homework, write two personal goals in the spaces below.

GOAL	

GOAL	

Session 2: Analyzing Goals

SMART goal checklist

Check the two personal goals you set for homework to ensure they are SMART.

GOAL 1
☐ Specific
☐ Measurable
☐ Attainable
☐ Realistic
☐ Timely

GOAL 2
☐ Specific
☐ Measurable
☐ Attainable
☐ Realistic
☐ Timely

Setting short-term goals

Now that you have a good primary goal or long-term goal set, set some short-term goals that will allow you to reach that long-term goal.

GOAL
Subgoal
Subgoal
Subgoal
GOAL
Subgoal
Subgoal
Subgoal

Goal-Plan-Review[2]

Name:

Date:

GOAL

(What do I want to accomplish?)

PLAN

(How am I going to accomplish my goal?)

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

REVIEW

(What worked? What didn't work? What would I have done differently?

Keep your eye on the prize

Post your goals where you see them throughout the day!

Try the task bar on your smartphone…

Other high-tech tracking ideas:

- Notes program in your smartphone or tablet
- Applications for your smartphone or tablet
- Documents or spreadsheets on your computer

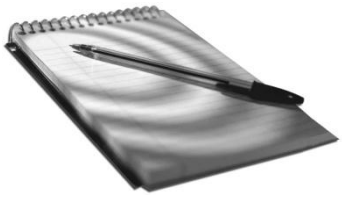
Or download a goal setting application for your PC…

Smith's Goals

Goals	Sun	Mon	Tues	Wed	Thr	Fri	Sat
Exercise	☑	☑	☒	☑	☒	☑	
Drink water	☑	☑	☑	☑	☒	☑	
Bring lunch		☑	☒	☑	☑		

Track your score @ www.meetyourgoalsusingtechnology.com

Or write down your goals in a place where you will see them daily.



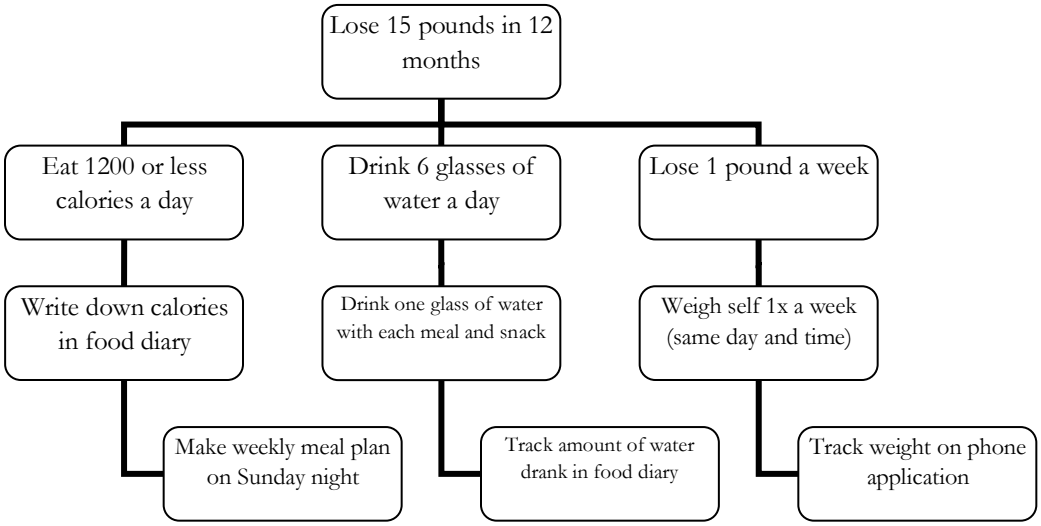
Other low-tech tracking ideas:

- "Sticky notes" placed on your mirror
- A selected page in your calendar or planner

Written goal formatting example

✐Where do you plan to post your goals? *(take the time to do so now, using the system you have)*

Written Goal Formatting Examples



The difference between a goal and a dream is the written word.
–Gene Donohue

LTG: Decrease Debt.
STG: Pay $200 more than minimum.
- Add $200 to monthly budget sheet for CC.

STG: Charge only hotels, flights.
- Keep receipts to track credit card charges.
- Only carry card while traveling.

STG: Pay off current charges in addition to regular.
- Review invoice before each payment to include new monthly charges.
- Turn off automatic payment in order to select amount of payment monthly.

Regardless of how you write or track them (paper, computer, smartphone app), it is important to write goals down.

Written goals:
- Keep your goals organized
- Allow you to commit them to memory
- Make it is easier to review them daily/weekly
- Allow you to physically check them off when accomplished

Goals must be in written form. Until you put them in writing, they are merely thoughts and hopes.
–Mary Gunn

2: Sustained Attention

Session 1: What is attention?[3,4]

Focused attention:

The ability to respond discretely to particular visual, auditory, or tactile stimulation.

Sustained attention:

The ability to sustain a steady response during continuous activity. It is commonly called concentration.

Selective attention:

The ability to maintain attention with distracting or competing stimuli present. These distractions may be either external (noise) or internal (worries).

Alternating attention:

The ability to shift focus between tasks or shift attention from one thing to another.

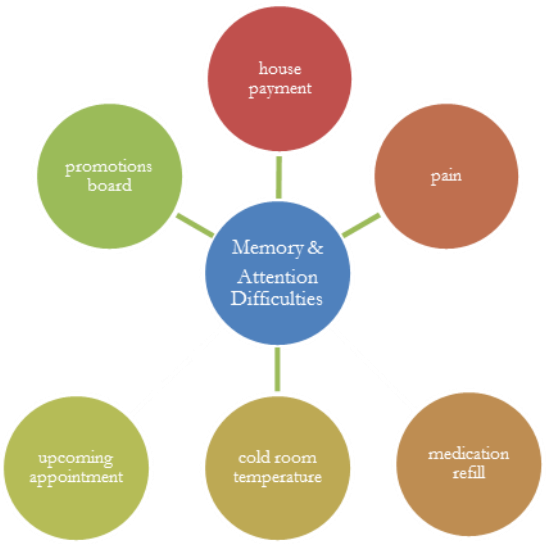
Divided attention:

The ability to simultaneously respond to multiple tasks or to do more than one activity at a time.

Examples:	
Reading an operational manual	Sustained
Reading emails with the radio on	Sustained & Selective
Answering text messages while listening for basketball scores on the television	Sustained & Alternating
Talking with a friend and listening for your name while waiting to be seated at a restaurant	Sustained & Divided
Talking on the cell phone	Sustained
Talking on the cell phone while watching a football game	Sustained & Selective
Ordering pizza on the phone and asking someone in the room for toppings	Sustained & Alternating
Talking on the cell phone while driving a car (not recommended)	Sustained & Divided

Internal & external distractions

Short-term memory can be affected by internal and external distractions. An average person can attend to five to nine things at one time. An increase in the number of internal distractors will limit the number of things you can remember. External strategies, such as the use of a calendar, can assist in decreasing the things you attend to by reducing the thinking workload, as illustrated with the top figure on the right.



Internal distractions are factors within your body such as pain, sleep deprivation, hunger, emotions and worry. External distracters are outside of your internal control, such as outside noise and clutter. Both can contribute to your difficulty with staying focused on a task.

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Identifying distractions

Refer to Specialist Smith's story and answer the following:		
Identify areas of attention breakdown for Specialist Smith	**Internal or external distraction**	**Possible modification**

For Session 2, name three specific instances where you have lost attention, and answer the following:		
Attention disruption in the following tasks	**Internal or external distraction**	**Possible modification**

Optimizing attention

Reduce external distractions	• Turn off the music or television, or use ear plugs • Minimize visual clutter
Modify your surroundings	• Find a quiet area • Rearrange furniture, close curtains • Ensure adequate lighting • Set desk/chair height to comfortable position at work • Set room temperature on the cool side to help keep you alert
Set alarms	• Set alarms as reminders for pending tasks to decrease the distraction of watching the clock
Modify times	• Use your individual best time, such as morning or afternoon, to focus on a task requiring attention to detail • Allow yourself time when changing tasks • When changing tasks, verbalize what you are currently doing • If you know you will be interrupted, work on a very familiar mundane task
Take breaks	• If you notice you are becoming distracted, take a short break and then return to the task at hand • Use the "High Priority/Low Priority" strategies for organization • Break tasks into smaller steps; mark off on a checklist after each task is completed
Focus on one task	• You may perform inadequately if juggling too many tasks at once
Avoid interruptions	• Use "Do Not Disturb" signs • Gather supplies before starting activity (pen, paper) • Turn off phone ringer
Be an active communication partner	• Ask questions during conversations to ensure clear understanding • Repeat information from conversations (paraphrase)
Improve sleep	• Sleep deprivation causes difficulty with paying attention
Decrease stress	• Internal distracters focus attention away from the task at hand
Exercise	• A healthier body helps your thinking skills
Use of sensory input to increase concentration	• Chew gum • Squeeze stress ball for hand • Tap a pencil or your foot
Use an idea log	• Designate a notebook or use voice recorder on smart phone
White noise	• Background music or fans may help block out surrounding distractions
Set a designated location	• Use the same location to keep key items in one place (cell phone and charging station, wallet, hat and key hangers)
Handling Interruptions	
Sticky notes	• Use sticky notes as place holders for tasks; note where you stopped and what action is pending, what you did last and what you will do next • When reading, use as place markers • Use visual cues: take lunch, grab keys, lock door, take medications
Phone calls	• Allow phone calls to go to voice mail and answer later

Session 2: Reducing Distractions

See Optimizing Attention in Session 1.

Distractions log

Place a tick/hash mark every time your attention drifts off the topic discussed in video.
卌

What do you think distracted you?

_____

_____

_____

_____

Were these distractions internal or external?

_____

_____

_____

Metacognitive rating scale[5]

Rate the following regarding this exercise

How hard did your brain work on that exercise?

0	1	2	3	4	5	6	7	8	9	10
Super Easy					Had to think				Crazy Hard	

How motivated were you to complete that exercise?

0	1	2	3	4	5	6	7	8	9	10
I gave up			I spaced out for some of it			I was pretty focused				I was in the zone

3: Memory and Learning

Session 1: Memory Strategies

Effects of memory and learning difficulties

Common difficulties following concussion and brain injury include remembering information and events that occurred following injury. Typically, memories before the injury are unaffected. Memory and learning difficulties can negatively affect individuals in their personal lives, ability to function at home and the way they perform at work and school.

Common memory difficulties that affect home and personal life include forgetting the following:

- Birthdays and anniversaries
- To pay bills
- Whether you left the stove or iron on
- Where you placed your car keys
- Groceries (e.g., items on list & bags in your car)
- Where you placed various items around your house
- To do daily chores around the house (e.g., take out trash, unload the dishwasher)
- Details from conversations

Common memory difficulties that can affect work and school include forgetting the following:

- Appointment and meeting times
- Meeting locations
- People's names
- Telephone numbers
- Details of things you have read
- To pass on a message
- To check your calendar

Many of these difficulties with memory and attention are experienced by the general population. Although you may be experiencing them for the first time or more often than before, some of the strategies you can use to improve your functioning are basic strategies commonly used by others around you. One study[6] revealed some things people with and without mTBI forget:

"Symptom"	Percentage of people who forget
Forgets telephone numbers	58%
Forgets people's names	48%
Loses car keys	31%
Forgets groceries	28%
Loses items around the house	17%
Forgets content of daily conversations	17%

Internal memory strategies

Internal Memory Strategies		
Internal memory strategies are often used to help you process information in a way that improves your ability to encode, consolidate and retrieve information more easily.		
Strategy	**Definition**	**Examples**
Visual Imagery	Create an image in your mind of something that you want to remember.	Visualize yourself driving when you are listening to directions. Picture yourself turning at the light.
Active observation	Observe and actively pay attention to your environment.	Actively pay attention to your surroundings while driving.
Association	Relate something that is unfamiliar to something with which you are already familiar.	Recall a family member's birthday by relating it to a major holiday, names, places, dates, concepts.
Rehearsal	Repeat information in your mind or aloud to improve encoding.	Repeat something quickly to yourself for immediate recall, such as a phone number. Repeat something over a longer period of time to encode for delayed recall or store in your long-term memory, such as facts from class or someone's names.
First letter cues	Focus on the first letter of a word, name, or phrase to help learn or memorize it. Use the first letter as a cue to retrieve that word.	Mnemonics (Sugar, Tea, Eggs, Milk spells STEM) (Never Eat Sour Watermelons to remember North, East, South, West). Acronyms (BSEP; Basic Skills and Education Program).
Rhymes (sayings)	Link ideas and facts together by rhyming, developing patterns between words or lyrics.	"i" before "e" except after "c."
Categorizing	Group information into meaningful sets.	Need to remember 6 things to get from the storage shed (2 boxes of baseball equipment, 1 box of ski gear, 2 boxes of study manuals, 1 box of baby toys).
Story method	Develop a story that incorporates all of the things you want to remember.	Kingdom, Phylum, Class, Order, Family, Genus, Species *I will rule the kingdom. And my people, I will fil' em' (phylum) by class. I will be able to order my family around. I will be the most genius (genus) of our species.*
Chunking	When reciting word or numbers for immediate memory, chunk them into threes or twos.	When memorizing a driver's license number, break up the number into patterns.

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PQRST & SQ3R[7,8]

PQRST & SQ3R		
PQRST	**P**review—Read through information once to become introduced to it	-Scan the headings or titles -Scan through key or bold words -Read summaries
	Question—Question yourself about what you have read	-Develop questions from the headings or subheadings -Develop questions that you expect to be asked during a test or exam -Use pre-developed questions if available at the beginning or end of the passage
	Read—Reread the passage to find the answers to any questions that you did not quite understand	-As you read, answer the questions -Reflect on what you read -Attempt to associate new information you read to something you already know
	State/**S**ummary—Literally state the answers to those questions	-State the answers to the questions by stating them aloud or writing them
	Test—Reread the passage to check and ensure your answers were correct	-Test yourself to ensure you know the information
SQ3R	**S**urvey- read through your passage to become introduced to it	-Read the title and the introductions -Review the main headings and summaries, if available
	Question – question yourself about what you have read	-Turn each subheading into a question -Write the questions down "questions make you more active while you read, you are looking for something"
	Read- read the passage again more slowly trying to answer those questions	-Read one section at a time
	Recall or **R**ecite- recall as much as you can from the passage	-Answer the questions in your own words -Say them aloud and/or write them down
	Review – reread the passage to see what you have forgotten	-Review the information numerous times with breaks in between

Session 2: Global Warming

Important facts to know:

1. What threats do scientists believe global warming will bring in the future?
2. What causes global warming?
3. What can we do to slow down this process?
4. What are the theories behind global warming?

According to several National Geographic online articles (see URLs for further study), scientists have been trying to determine what is causing the rapid increase and effects of global warming for decades. Although they are aware of the natural events that can influence the climate, the amount and pattern of warming cannot be explained by the natural causes alone. Scientists believe that greenhouses gases, also known as GHG's, emitted by humans are having a significant impact. It is believed that we are releasing more heat-trapping gases than ever to power our modern lives.

What are greenhouse gases and the greenhouse effect?

Greenhouse gases (GHG) is a term used to describe the actual gases that trap heat. The "greenhouse effect" is the term used to describe what happens when these gases trap heat. It all begins with the sunlight that is shining daily onto the earth's surface. The earth's surface will absorb some of the heat; however, much of it is radiated back into the atmosphere as heat. In the atmosphere, GHG will trap some of heat and the rest will continue on into space. The more GHG present in the atmosphere, the more heat gets trapped. As the earth rotates each day, the heat in the atmosphere spins in various patterns, and the heat rises and settles in various areas.

Scientists have known for some time which types of greenhouse gases affect the environment and how humans are involved in emitting these gases. Primary sources of GHG are the combustions of fossil fuels from cars, factories and electricity production. Carbon dioxide (CO_2) is responsible for most of the warming; however, there are many other gases that contribute including methane (released from landfills and agriculture), nitrous oxide (fertilizers) and gases used for refrigeration processes. Many of the gases stated above actually trap more heat than CO_2. A molecule of methane produces more than 20 times the warming of a molecule of CO_2. Nitrous oxide is 300 times more powerful, and gases such as chlorofluorocarbons can trap heat more than 1,000 times greater than CO_2. Fortunately many chlorofluorocarbons have been banned because of their degrading effect on the ozone layer.

So why is CO_2 responsible for most of the warming when the other gases are greater at trapping heat? CO_2 is at a much higher level of concentration than the other gases mentioned. Therefore, CO_2 still holds the lead in affecting global warming.

According a recent National Geographic Article, since 1990 there has been a 20 percent increase in the yearly emissions of the "carbon dioxide equivalent." The carbon dioxide equivalent is a term used to label all of the gases together.

The study of global warming

The greenhouse effect was first labeled in 1824 by Joseph Fourier. He developed an understanding about this process after determining that the earth would be much colder, approximately 60 degrees, if there were no atmosphere to trap the heat.

Global warming is constantly being examined and followed by many. Research began approximately 100 years ago when a Swedish chemist, Svante Arrhenius, discovered that CO_2 could enhance the

greenhouse effect. The International Panel on Climate Change (IPCC), which includes hundreds of leading scientists, meets every few years to review, compare and summarize the latest findings and reported information on global warming. Scientists often use the word "climate change" vs "global warming," which is identified in the organization's title. The term climate change allows for a better description that these atmospheric changes cause temperatures to rise and fall variably across the globe versus just focusing on the warming aspect of global warming.

Global warming has already been affecting the globe for many years. Research shows that the mercury is globally 1 Fahrenheit degree higher. So, are temperature changes common? According to National Geographic, temperatures have fluctuated for thousands of years, which explains why ice ages have come and gone. For thousands of years, the atmosphere has been balanced enough to allow humans to inhabit the earth. Although there have always been changes in the amount of carbon dioxide in the past those changes have taken thousands of years to occur. There is concern now due to significant changes occurring over the course of decades.

What changes are we seeing or can we anticipate?

Ice is reportedly melting in mountain glaciers and ice sheets in west Antarctica, Greenland and the Arctic Sea. Even Montana's Glacier National Park has lost some of it glaciers. There are now 27 glaciers in comparison to 150 in 1910. This is causing sea levels to rise, which will continue throughout the years. If warming continues, it is suggested that by the end of the century, sea levels will rise between 7 and 23 inches. Although the warming is often reported as the melting of ice, it has been reported to have an effect on coral reefs as well. Coral reefs are highly sensitive to small changes in temperature, which causes *bleaching*, the term used to describe die-off in response to stress. Research states that rates of bleaching are the worst seen since 1998.

Increased rain and snowfall has been observed across the globe. If this continues, we will notice an increase in storms and hurricanes, as well as an increase in floods and droughts.

Current effects on animals and wildlife include the significant decline in breeding pairs of the Adelie penguins, which are located on Antarctica. These penguins have gone from 32,000 to 11,000 breeding pairs within the past 30 years. Various animals such as butterflies and foxes are moving to cooler areas and others, such as the spruce bark beetle, are enjoying the warm weather. This beetle is increasingly inhabiting Alaska and chewing up approximately 4 million acres of spruce trees. In the future, it appears that many animals will migrate and may even disappear. This may be caused by lack of resources or the possibility that species that rely on each other, such pollination of plants and the active cycles of insects, will become out of sync. Basically, the climate is changing faster than some living things can adapt.

What can humans do?

Scientists believe that changes can still be made to prevent the most damaging effects from global warming. Scientists and the government have been working hard to decrease GHG. A few areas have been identified as *wedges* to decrease GHG emissions. Some areas include vehicle fuel economy, increases in wind and solar power, biofuels and natural gas. Other than decreasing emissions of CO_2, there is a possibility that the emissions could be trapped and stored underground, which is known as *carbon sequestration*.

Finally, there is always the need for more plants and trees, as they are naturally able to absorb CO_2 as it is emitted.

There are many opinions about global warming and the current effects on our lives. Some believe that the changes in temperature are natural and are not affected by humans and their emissions of CO_2 into the atmosphere. They also believe that melting ice and movement of species to new habitats is unrelated to global warming.

Overall, it appears that scientists will continue to research global warming for years to come.

Questions?

1. *What are greenhouse gases?*
2. *Identify gases that trap heat?*
3. *Which organization continues to research the history and future effects of global warming?*
4. *How has global warming affected nature and wildlife?*
5. *In what ways can humans try to decrease the process of global warming?*

URLs for further study:

- Causes of Global Warming, pages 1-2, 21 April 2011
  http://enviornment.nationalgeopraphic.com/environment/global-warming/gw-causes
- Effects of Global Warming
  http://enviornment.nationalgeopraphic.com/environment/global-warming/gw-effects/
- What is Global Warming?
  http://enviornment.nationalgeopraphic.com/environment/global-warming/gw-overview
- Global Warming Solutions
  http://enviornment.nationalgeopraphic.com/environment/global-warming/gw-solutions
- Global Warming Fast Facts, pages 1-2, April 14, 2011
  http://news.nationalgeographic.com/news/2004/12/1206_041206_global_warming.html

Quiz: Global warming

Global Warming Quiz	
1	What does the acronym GHG stand for?
2	What is the term used to describe the process of gases trapping heat?
3	Which gas is currently considered responsible for most of the warming, and why?
4	Name another type of gas that traps heat in the atmosphere.
5	What is another term used to describe global warming?
6	When was the term "greenhouse effect" first labeled?
7	What does IPCC stand for?
8	Since 1910, how many glaciers has Montana's Glacier National Park lost?
9	Which animal has decreased from 32,000 breeding pairs to 11,000 in the past 30 years in Antarctica?
10	What does the term "bleaching" mean?
11	The government has been looking at certain areas to decrease GHG emissions. What is the term for the areas they are looking at controlling?
12	What is carbon sequestration?
13	List three ways that emissions can be decreased.
14	In your own words, explain what the article discusses about possible future weather conditions due to global warming.
15	In your own words, explain how global warming will affect the future of plants and wildlife.

PQRST/SQ3R project guidelines example

The methods of PQRST and SQ3R are most commonly used when learning new information in an educational setting. However, the same theory can be applied when learning new information at work or home. Here is an example of how PQRST can be used on a work document.

Example of PQRST and/or SQ3R

Section A

A.1

-How many copies of the final manual should be provided?

4

- Manuals should be submitted and approved by the owner when?

60 days <u>before</u> completion of the project

- What if manuals are late?

Charged $1,000.00 a day

A.2

-What is equipment?

Single piece of equipment operating <u>alone</u> or in conjunction with other equipment.

-What is a system?

Combo of one or more pieces of equipment

Construction guidelines using PQRST/SQ3R

EQUIPMENT OPERATION, MAINTENANCE, AND REPAIR MANUAL DEVELOPMENT

SECTION A – Requirements of Manual Construction/Development

A.1 General Requirements

The contractor should provide 4 finalized copies of the Equipment Operation, Maintenance, and Repair Manuals. In addition to these comprehensive manuals, 2 separate manuals for each service should also be submitted (i.e. electrical, plumbing). The manuals should be submitted and approved by the owner 60 days before completion of the project (signified by date facility will be in operation, which includes initial operations by employees of the company or organization). Should manuals be submitted after the 60 day deadline, the contractor will be charged $1,000.00 per day until manuals are received.

A.2 Specific Requirements of the Manuals

A.2.1 Equipment is defined as a single piece of equipment operating alone or in conjunction with other equipment to accomplish a system function.

A.2.2 System is a combination of one or more pieces of equipment which function together to accomplish a purpose (i.e. a network system is composed of many pieces of equipment: hard drives, wires, modems, etc.)

A.2.3 Binder Specifications

Manuals should be placed in hard cover three-ring binders. Binder width should be one inch larger than the minimal amount required to hold the specified document. Binder width should not be larger than 4 inches. If a binder would exceed 4 inches and based on the prior specification (1 inch more than minimum), the material should be place in two binders labeled PART 1 and PART 2. Binders should also be labeled with EQUIPMENT OPERATION, MAINTENANCE, and REPAIR MANUAL on both the spine and the front cover in addition to the contract number.

A.2.3 Warning Page

If potential dangers exist on the project including toxic chemicals, explosive materials, etc. a warning page should be placed as the first page of the manuals. This should be followed by Material Safety Data Sheets (MSDS).

A.2.4 Title Page

This page will follow the warning page if a warning section exists. Otherwise, it will be the first page in the manual. The title page should include EQUIPMENT OPERATION, MAINTENANCE, AND REPAIR MANUAL and the contract number.

A.2.5 Table of Contents

Each manual should include a table of contents which will be broken into 6 modules.

SECTION B – Description of Manual Modules

B.1 Module 1 – Introduction

B.1.2 Introduction should include list of the systems with descriptions. It should also include information on installation, set up, and assembly.

B.2 Module 2 – Operating Principles

B.2.1 Operating Principle should include instructions and manuals for operating the equipment following initial setup and assembly. This should include manuals, diagrams, etc.

B.3 Module 3 – Safety

B.3.1 Safety should include all safety requirements for each piece of equipment and the system.

B.3.2 Information included in this section should describe the required signs and postage that should be on or around all equipment.

B.4 Module 4 – Preventive Maintenance

B.4.1 Preventive maintenance should include instructions for adjustment and alignment procedures. It should also include a detailed preventative maintenance schedule.

B.4.2 This section should include diagnostic sheets to help with diagnosis and solutions to problems. Specific tools and test equipment should be included in this area.

B.5 Module 5 – Repair

B.5.1 This module should include instructions and tools for repair and placement of parts. In addition, it should include contact information for parts and repairs of the items when necessary.

B.6 Module 6 – Plans and Illustrations

B.6.1 Module 6 must include assembly drawings for all equipment and systems.

B.6.1 This module must also include plans for each location of equipment within the systems and the building.

B.7 Module 7 – Training

B.7.1 Training will be provided directly to those involved with these systems within the company that will be occupying the new building. The training will include review of the information in the EQUIPMENT OPERATION, MAINTENANCE, AND REPAIR MANUAL.

B.7.2 Hands on training will also be provided totaling one hour of training on each system cumulatively with the manual instruction for each system.

B.7.3 Videotaped training shall be provided by taping all lecture and hands on instruction. This videotape shall accompany the manual and be identified in the training portion of the manual.

Pros and cons of PQRST and SQR3 methods

PROS	CONS
PQRST is structured, which prevents me from being distracted.	PQRST seems time consuming with all of the steps.

4: Planning and Organization

Session 1: Planning and Problem Solving

Importance of planning, time management, and organization

Everything we do involves planning, time management, and organization no matter what the task, no matter how small or big. The more complicated, the more planning, time management, and organization required.

Simple tasks, and those that we complete on a regular basis, may seem as they are skipped, but even the smallest tasks involve planning, time management, and organization. For example, walking to the mailbox to pick up the mail:

- **Goal**. To retrieve the mail from the mailbox at the end of the driveway
- **Strategy.** Walk to mailbox, without being distracted by something else and get mail
- **Organize resources.** Will need shoes, coat if during cold months
- **Monitoring progress.** Did you complete the task in a timely manner?

Planning involves using a set of strategies in order to accomplish a goal. Components of planning include prioritization, sequencing and foresight. It may involve both short-term and long-term goals and taking all aspects of a situation into consideration while making a plan.

Time Management is the ability to create and follow a schedule, meet deadlines, prioritize and minimize distractions (not focus on unimportant tasks) so that tasks and projects get done.

Organization involves a systematic approach that facilitates goal-directed behavior. It may involve sequencing and analysis of a complex situation, and it promotes efficiency and task completion.

Preparing to haul medical supplies to Fort Hood

Instructions: You are in charge of a squad of soldiers with the Military Occupational Specialty of 88 M/truck driver. On Monday, you and the troops were tasked to haul desperately needed medical supplies from Fort Sam Houston to Fort Hood. You are responsible for transporting 1,000 crates of medical supplies. You must have the medical supplies to Fort Hood by 1400 hours on Thursday.

The trucks you have available can haul a maximum of 100-150 crates. The fuel efficiency of your trucks is approximately 5 miles per gallon of fuel. The fuel tanks on your truck can hold 20 gallons of fuel. The distance between Fort Sam Houston to Fort Hood is 175 miles. Your assignment is to ensure these medical supplies are delivered to Fort Hood by the suspense time and date.

Use the space below to develop a plan to complete the mission!

Goal-Plan-Review[2]

Name:

Date:

GOAL

(What do I want to accomplish?)

PLAN

(How am I going to accomplish my goal?)

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

REVIEW

(What worked? What didn't work? What would I have done differently?)

Problem-solving homework: using the T-Account method

Instructions: Identify a problem that you experience in your everyday life (i.e., forgetting to pay bills on time or pick up prescriptions, reporting to duty on a no driving profile, responding to a friend who owes you money and is requesting to borrow more). Identify two solutions and list the positive and negative aspects of each solution in the spaces provided.

Problem: _____

Solution 1:

Positive (+)	Negative (-)

Solution 2:

Positive (+)	Negative (-)

Session 2: Case Studies, Planning, & Tips

Case study exercise

Instructions: Your assignment is to design a system to manage the duties for the maintenance of the motor pool vehicles. Refer to the Specialist Smith case study.

Client may use the T-Account method or Goal-Plan-Review[2] techniques. Use the space below as scratch paper.

Specialist Smith case study

Specialist Smith was injured in an IED blast to an MRAP vehicle 9 months ago, resulting in a concussion and a fracture to the hand. Specialist Smith works in the motor pool and complains his job has become more difficult. He thinks he is spacing out at work. He has difficulty figuring out what to do when asked to do simple things, such as determining when to change the oil in the truck fleet. He forgets to complete vehicle inspections on time. During peak times at work, Specialist Smith frequently mixes up repair orders for different vehicles. He thinks the difficulty is due to answering the office phone, responding to emails and attending to people in the office at the same time.

Specialist Smith has difficulty managing his work schedule around his bi-weekly occupational therapy appointments for his hand rehabilitation. He attends approximately one-half of his scheduled appointments. Often, Specialist Smith remembers his appointments 15 minutes after the scheduled start time.

Specialist Smith also frequently misplaces his hat and keys at home. Sometimes he forgets to take his morning and evening medications. He reported no thinking difficulties prior to his injuries in May.

Specialist Smith is married and the father of two children, ages 5 and 2. He and his family reside on post. In the near future, the Smiths want to buy their own home near good schools. Specialist Smith is unsure whether he can afford to make this move. He reports limited income and excessive credit card debt. He reports he has lost control of what and to whom he owes since his injuries. He wants to be the family financial manager, because his wife is "worse with numbers than I am."

Specialist Smith desires to get an associate degree in criminal justice. He failed a history course 2 months ago. He had difficulty retaining the large amount of information needed to pass the course. He spaced out during the lectures and became easily distracted by many things to include noises outside the classroom windows and thinking about his plans for dinner. He was also distracted when studying at home, because his home has an open floor plan, and he could not concentrate while the kids were playing in the living room. When he attempted to study after the kids went to bed, he often ran out of time, because he would not begin his assignments until very late at night. Furthermore, Specialist Smith did poorly in school because he had to read the information over and over again to understand it.

Specialist Smith is in charge of getting dinner started, a task he previously enjoyed. He no longer enjoys cooking, because he often burns the food, forgetting he has something on the stove. When cooking, he often gets distracted by tasks including answering supervisor's text messages, folding laundry and helping children with homework.

Goal-Plan-Review[2]

Name:

Date:

GOAL

(What do I want to accomplish?)

PLAN

(How am I going to accomplish my goal?)

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

REVIEW

(What worked? What didn't work? What would I have done differently?)

Problem-solving homework: using the T-Account method

Problem: _____

Solution: _____

Positive (+)	Negative (-)

Problem: _____

Solution: _____

Positive (+)	Negative (-)

Tips to help if you have problems with planning, time management and organization:

- Set a realistic schedule (don't try to fit in too much)
- Keep a written schedule of tasks to accomplish
- Take time to prioritize your work
- Budget your time wisely (use a timeline, set a start/end time, block your schedule)
- Break down large or long-term tasks into smaller parts
- Take occasional breaks
- Reduce clutter in your environment
- Use systematic planning tools consistently (smartphones, day planners)
- Limit noise within your working space
- Use color-coding to help organize papers
- Work away from open doors or windows to minimize distractions
- Set alarms or timers to pace your work
- Minimize distractions and use earplugs or a headset when working on independent projects
- Review your work frequently
- Use a checklist for activities and tasks you must self-monitor

5. Prospective Memory & Assistive Technology

Session 1: The Memory System[9-11]

Stages of memory storage

Sensory

- Sensory input that is registered in and relayed to the brain. Lasts only a few seconds and may be incidentally or subconsciously transferred to short-term memory.

Short-term

- Also known as the "crossroads of the memory system." Short-term memory holds and processes information that is received from sensory memory and retrieved from long-term memory. It must hold on to information for approximately 30 seconds before the information can be transferred to long term memory. If information is not utilized, it is forgotten.

Long-term

- Stores information indefinitely. Information stored is generally in an inactive form and remains available for retrieval at another time.

Steps of the memory process

Attention

- The cognitive process of concentrating on one aspect of the environment while ignoring other things.

Encoding

- The initial stage of memory. Encoding is the analysis performed on materials to be remembered.

Storage

- When information is encoded, it is stored in long-term memory.

Consolidation

- Processing that stabilizes a memory trace after initial acquisition (also known as the process of practicing). Often thought of as categorizing and organizing the memories. Repetition helps consolidation.

Retrieval

- Searching for or activating existing memories. Retrieval requires the ability to monitor the accuracy and appropriateness of the memories pulled from storage.

Prospective Memory

What is it? Prospective memory is also commonly referred to as "everyday memory." Prospective memory is remembering to initiate intended action for a future time. This type of memory is very practical. It allows you to complete day-to-day activities, like paying your bills, picking up medication or changing the oil in your car.

Environmental Modification

Where are my car keys?

Did you know that 31percent of Americans routinely misplace their car keys? Are you part of this statistic? If so, you might think about changing the way you organize your home and office. Here are a few ideas to reorganize your space and help you remember where those keys are, as well as everyday tasks and responsibilities.

- Place items you need to take outside the home (e.g., smartphone, wallet, SCORE manual) in a place you see as you leave the home. This will cue you to take the item(s) with you.
- Place your calendars and 'to do' lists (if you use these) in areas of your home or work where you will see them throughout the day.
- Place your calendars and to-do lists in areas of your home or work that are free of visual clutter. If your calendar is one of many pieces of brightly colored paper hanging on your wall, you are less likely to pay attention to it.
- Place your alarmed memory devices (e.g, smartphone, tablet, timers) near where you spend time at home or work. An alarm is no good to you if it is sounding in the bedroom when you are in the back yard with the kids.

Getting the cue

Can you think of a modification you want to make to ensure that you get the cue that something needs to get done?

Solution #1_____

Solution #2_____

External memory strategies including assistive technology

Life, today, is very busy and complicated. We interact daily with our families, our peers, our supervisors and others requiring us to remember much information. The human brain may not be able to hold all this information. Think of your brain as a stove with a set number of burners to cook food. Imagine each piece of information you are to remember is a dish of food to cook. Imagine you are at a busy work station. All of your stove's burners are full processing foods (information). Then, your significant other calls, giving you a phone number to give your child's teacher and a list of things to pick up at the store on your way home. Your burners are full.

Unfortunately, you do not process this information and you forget what your wife told you. External memory strategies allow you to offload some of the information on your mental stove. By offloading information, you free up mental burners, so you can remember to give the child's teacher the phone number. There is a wide variety of external strategies to use:

- **Notebooks**. We often take notes in order to refer to them in the future. Furthermore, writing information, especially in an organized way, can improve the way that you encode the information.
- **Calendars**. Looking at an appointment on an organized monthly calendar can improve an individual's ability to encode the date and time vs seeing it on a random sheet of paper or only hearing it. This works especially well if you are a visual learner.
- **Checklists**. Writing information in an organized checklist can help**.**
- **Electronic organizers**. Smartphones and tablets have a calendar feature and a task feature that you can use to remind you to complete a task. Smartphones and tablets typically have alarms built into them to cue you to get the task done.
- **Computers**. Many computer programs are available to use to remind you of tasks.
- **Tape recorders**. If you are an auditory learner, this strategy can be helpful. With permission, you can tape lectures, messages, and even yourself reading.
- **Alarms or Timers.** Alarms can be set on electronic devices to remind you of things such as when to leave for a meeting or appointment. Alarms can also help remind you of when to take your medications.
- **Watches with beepers**. These can be used as auditory reminders.
- **Medication dispensers.** These can be used to organize your medications.
- **Highlighters**. Highlighting important information while you read, important facts from notes, or special dates on a calendar can help you encode that information better.

Specialist Smith case study

Specialist Smith was injured in an IED blast to an MRAP vehicle 9 months ago, resulting in a concussion and a fracture to the hand. Specialist Smith works in the motor pool and complains his job has become more difficult. He thinks he is spacing out at work. He has difficulty figuring out what to do when asked to do simple things, such as determining when to change the oil in the truck fleet. He forgets to complete vehicle inspections on time. During peak times at work, Specialist Smith frequently mixes up repair orders for different vehicles. He thinks the difficulty is due to answering the office phone, responding to emails and attending to people in the office at the same time.

Specialist Smith has difficulty managing his work schedule around his bi-weekly occupational therapy appointments for his hand rehabilitation. He attends approximately one-half of his scheduled appointments. Often, Specialist Smith remembers his appointments 15 minutes after the scheduled start time.

Specialist Smith also frequently misplaces his hat and keys at home. Sometimes he forgets to take his morning and evening medications. He reported no thinking difficulties prior to his injuries in May.

Specialist Smith is married and the father of two children, ages 5 and 2. He and his family reside on post. In the near future, the Smiths want to buy their own home near good schools. Specialist Smith is unsure whether he can afford to make this move. He reports limited income and excessive credit card debt. He reports he has lost control of what and to whom he owes since his injuries. He wants to be the family financial manager, because his wife is "worse with numbers than I am."

Specialist Smith desires to get an associate degree in criminal justice. He failed a history course 2 months ago. He had difficulty retaining the large amount of information needed to pass the course. He spaced out during the lectures and became easily distracted by many things to include noises outside the classroom windows and thinking about his plans for dinner. He was also distracted when studying at home, because his home has an open floor plan, and he could not concentrate while the kids were playing in the living room. When he attempted to study after the kids went to bed, he often ran out of time, because he would not begin his assignments until very late at night. Furthermore, Specialist Smith did poorly in school because he had to read the information over and over again to understand it.

Specialist Smith is in charge of getting dinner started, a task he previously enjoyed. He no longer enjoys cooking, because he often burns the food, forgetting he has something on the stove. When cooking, he often gets distracted by tasks including answering supervisor's text messages, folding laundry and helping children with homework.

Session 2: Prospective Memory Exercise

What external memory strategy will you use to remember your task?

1. When the clock strikes half past the hour, please tap your pen several times.
2. Please throw something in the room's trash can at __ minutes past the hour.
3. Please open and close your SCORE manual, two times, at __ minutes past the hour.
4. Please stretch your arms, in sitting, at __ minutes past the hour.
5. Please stand up at __ minutes past the hour.
6. Please scratch your left shoulder at __ minutes past the hour.
7. Please readjust your chair at __ minutes past the hour.
8. Please step outside the room for less than 1 minute at __ minutes past the hour.

6. Alternating Attention

Session 1: What is Attention[3,4]?

Focused attention:

The ability to respond discretely to particular visual, auditory, or tactile stimulation.

Sustained attention:

The ability to sustain a steady response during continuous activity. It is commonly called concentration.

Selective attention:

The ability to maintain attention with distracting or competing stimuli present. These distractions may be either external (noise) or internal (worries).

Alternating attention:

The ability to shift focus between tasks or shift attention from one thing to another.

Divided attention:

The ability to simultaneously respond to multiple tasks or to do more than one activity at a time.

Examples:	
Reading an operational manual	Sustained
Reading emails with the radio on	Sustained & Selective
Answering text messages while listening for basketball scores on the television	Sustained & Alternating
Talking with a friend and listening for your name while waiting to be seated at a restaurant	Sustained & Divided
Talking on the cell phone	Sustained
Talking on the cell phone while watching a football game	Sustained & Selective
Ordering pizza on the phone and asking someone in the room for toppings	Sustained & Alternating
Talking on the cell phone while driving a car (not recommended)	Sustained & Divided

Specialist Smith case study

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Specialist Smith is in charge of getting dinner started, a task he previously enjoyed. He no longer enjoys cooking, because he often burns the food, forgetting he has something on the stove. When cooking, he often gets distracted by tasks including answering supervisor's text messages, folding laundry and helping children with homework.

Optimizing attention

Optimizing Attention: Environmental Strategies	
Reduce external distractions	• Turn off the music, television, or use ear plugs • Minimize visual clutter
Modify your surroundings	• Find a quiet area • Rearrange furniture, close curtains • Ensure adequate lighting • Set desk/chair height to comfortable position at work • Set room temperature on the cool side to help keep you alert
Set alarms	• Set alarms as reminders for pending tasks to decrease the distraction of watching the clock
Modify times	• Use your individual best time to focus on a task such as morning or afternoon for tasks requiring attention to detail • Allow yourself time when changing tasks • When changing tasks, verbalize what you are currently doing • If you know you will be interrupted, work on a very familiar mundane task
Take breaks	• If you notice you are becoming distracted, take a short break and then return to the task at hand • Use the "High Priority/Low Priority" strategies for organization • Break tasks into smaller steps; mark off on a checklist after each task is completed
Focus on one task	• You may perform inadequately if juggling too many tasks at once
Avoid interruptions	• Use "Do Not Disturb" signs • Gather supplies before starting activity (pen, paper) • Turn off phone ringer
Be an active communication partner	• Ask questions during conversations to ensure clear understanding • Repeat information from conversations (paraphrase)
Improve sleep	• Sleep deprivation causes difficulty with paying attention
Decrease stress	• Internal distracters focus attention away from the task at hand
Exercise	• A healthier body helps your thinking skills
Use of sensory input to increase concentration	• Chew gum • Squeeze stress ball for hand • Tap a pencil or your foot
Use an idea log	• Designate a notebook or use voice recorder on smart phone
White noise	• Background music or fans may help block out surrounding distractions
Set a designated location	• Use the same location to keep key items in one place (cell phone and charging station, wallet, hat and key hangers)
Handling Interruptions	
Sticky notes	• Use sticky notes as place holders for tasks; note where you stopped and what action is pending, what you did last and what you will do next • When reading, use as place markers • Use visual cues: take lunch, grab keys, lock door, take medications
Phone calls	• Allow phone calls to go to voice mail and answer later

Session 2: Juggling Duties

Specialist Smith juggling duties

Divided attention

Divided attention is described as the ability to do more than one thing at a time (multi-tasking). Divided attention is challenged with varying degrees of difficulty, resulting in potential decrease in accuracy and increase in time requirement to complete tasks. A new task is expected to take more time to complete. The following are variables that affect accuracy: difficulty of each task, familiarity of each task, enjoyment, number of tasks and amount of time. Refer to Specialist Smith's story to answer the following:

Specialist Smith		
Concurrent tasks	Problems	Solutions

For Session 2: Identify individual scenarios		
Concurrent tasks	Problems	Solutions

Everyday alternating attention tasks

Remember, alternating attention is the ability to shift attention among tasks that have different cognitive requirements. Situations in which you have to shift attention can occur frequently and require cognitive flexibility. One common example is a secretary who often must shift attention between phone calls, emails, persons arriving at his/her desk and general daily tasks.

Examples	Strategies
Listening to a brief while shifting between the speaker and taking notes.	• Smartpen, recorder (*with permission) • Inquire about available copy of slides or meeting minutes
Ordering tickets at a ticket booth while talking on the phone with a friend.	• Focus on one task at a time, hang up or ask your friend to hold
Sorting receipts and entering information into your electronic budgeting spreadsheet.	• Quiet space • Mark a place holder (highlight the next line on spreadsheet with cursor before you look down) • Stay organized (organize entries into deposits, withdrawals and transfers)
Working on a crossword puzzle while answering questions from your children about their math homework.	• Mark a place holder with a sticky note • Keep a running list, on the side of the paper, for the corresponding number you are on when you need to switch attention
Reading a magazine while shifting your attention to certain stories on the daily news.	• Mark a placeholder with a sticky note, draw a line with a pen, or use place your finger over the last line read
Answering phone calls while reading & replying to emails.	• Take written messages for the phone calls • If possible finish the current email before relaying the phone message • Leave your email open and visible on your computer screen to remind you of what you were doing when you return from relaying a message
Preparing dinner and moving laundry from the washer to the dryer for several loads.	• Leave next ingredient or recipe out as reference when you return to the kitchen • Set a kitchen timer to ensure you return in 10 minutes to stir • Self-talk: "When I return I need to add the sauce"
Playing a game on your computer and responding to an instant message.	• Use pause button when available then return to game • Ignore message until your game is over
While driving, following GPS instructions.	• Use re-route function and ignore GPS if unable to understand directions

References

1. Donohue, G. (2011). Creating S.M.A.R.T. Goals. *TOP Achievement: Self Improvement and Personal Development Community.* Retrieved from http://topachievement.com/smart.html
2. Feeney, T. J., and Ylvisaker, M. (1998). Collaborative Brain Injury Intervention: Positive Everyday Routines. Thompson Delmar Learning, Clifton Park, New York.
3. Bennett, T. L., Malia, K., Linton, B., Raymond, M., & Bewick, K. (1998). Rehabilitation of Attention and Concentration Deficits Following Brain Injury. *The Journal of Cognitive Rehabilitation,* (8-13).
4. Sohlberg, McKay M., & Mateer, Catherine A. (2001). *Cognitive Rehabilitation.* New York: Gilford Press.
5. Sohlberg, M. M. and Mateer, C. A. (2010). Attention Process Training -3 (APT-3): A Direct Attention Training Program for the Remediation of Attention Deficits: APT-3 Manual. Lash & Associates Publishing/Training Inc., Youngsville, North Carolina.
6. Mittenberg, W., DiGiulio, D. V., Perrin, S., & Bass, A. E. (1992). Symptoms Following mild head injury: expectation as etiology. *Journal of Neurology, Neurosurgery, and Psychiatry, 55,* 200-204.
7. Robinson, Francis Pleasant (1970). Effective study (4th ed.). Harper & Row, New York, NY.
8. Berg, Paul C. & Spache, George D. (1966). The Art of Efficient Reading. 2nd edition. The Macmillan Company, New York, NY. Page 93.
9. Malia, K. B., Bewick, K. C., Raymond, M. J., & Bennett, T. L. (2002). Brainwave-R, Cognitive Strategies and Techniques for Brain Injury Rehabilitation – Memory. Pro-ed, Austin, Texas.
10. Malia, K. B., Bewick, K. C., Raymond, M. J., & Bennett, T. L. (1996, November, December). A Comprehensive Approach to Memory Rehabilitation Following Brain Injury. *The Journal of Cognitive Rehabilitation.*
11. Atkinson, R. C. & Shiffrin, R. M. (1968). Chapter: Human memory: A proposed system and its control processes. In Spence, K. W., & Spence, J. T. *The psychology of learning and motivation* (Volume 2). New York: Academic Press. pp. 89–195.

Appendix A: Acronyms

IED	improvised explosive device
MRAP	mine-resistant ambush-protected
mTBI	mild traumatic brain injury
PQRST	preview, question, read, state/summary, test
SCORE	Study of Cognitive Rehabilitation Effectiveness
SMART	Specific, Measurable, Attainable, Realistic, Timely (goals)
SQ3R	survey, question, read, recall/recite, review
TBI	traumatic brain injury