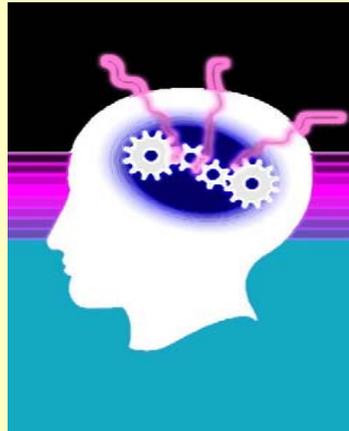


MEMORY MODULE

A Training Module for Parents and Educators of
Children with Traumatic Brain Injury.



Funded by an IDEA Discretionary Grant #2007-9911-22

Wisconsin Department of Public Instruction

(<http://www.dpi.wi.gov>)

WISCONSIN TRAUMATIC BRAIN INJURY (TBI) INITIATIVE

The Wisconsin TBI Initiative is funded through a Wisconsin Department of Public Instruction (DPI) discretionary grant. The TBI Initiative provides training, information and support to those interested in the education of children with TBI through:

- **CESA-based TBI consultants**
- **State-wide trainings**
- **Staff development materials**

GOALS OF THE TRAINING MODULE

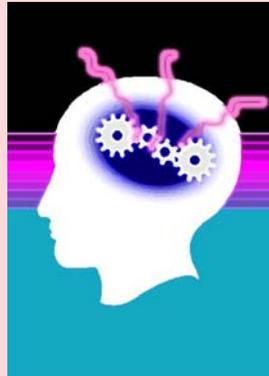
- ✓ Increase basic knowledge about memory
- ✓ Understand traumatic brain injury (TBI) in relation to memory
- ✓ Provide tools for educational support based upon research and best practice

STATISTICS

- Annually, **1.4 million** people sustain a TBI in the US.
- Highest risk groups are **0-4** year olds and **15-19** year olds.
- **1 out of 25** students experience a TBI prior to graduation.
- Males are **twice** as likely to experience a TBI than females.
- In Wisconsin, **412** students are identified with a TBI (as of December 1, 2006)

MEMORY TRAINING MODULE

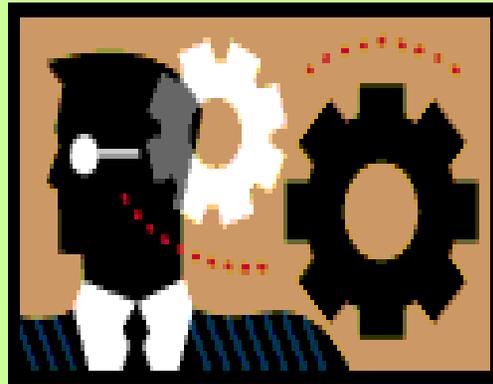
Introduction



When attention, concentration and memory are disrupted by brain injury, academic work is adversely affected because the student is unable to connect new learning to prior knowledge.



WHAT IS MEMORY?



MEMORY

- Ability to store, retain, and subsequently recall information.
- Process of organizing and storing representations of events and recalling these representations to consciousness at a later date.

Savage and Wolcott, 1995

LOSS OF MEMORY

- Majority of students with a TBI have memory deficits.
- Two types of memory deficits
 - **Retrograde Amnesia (inability to remember events prior to the injury)**
 - **Anterograde Amnesia (inability to store new memories)**

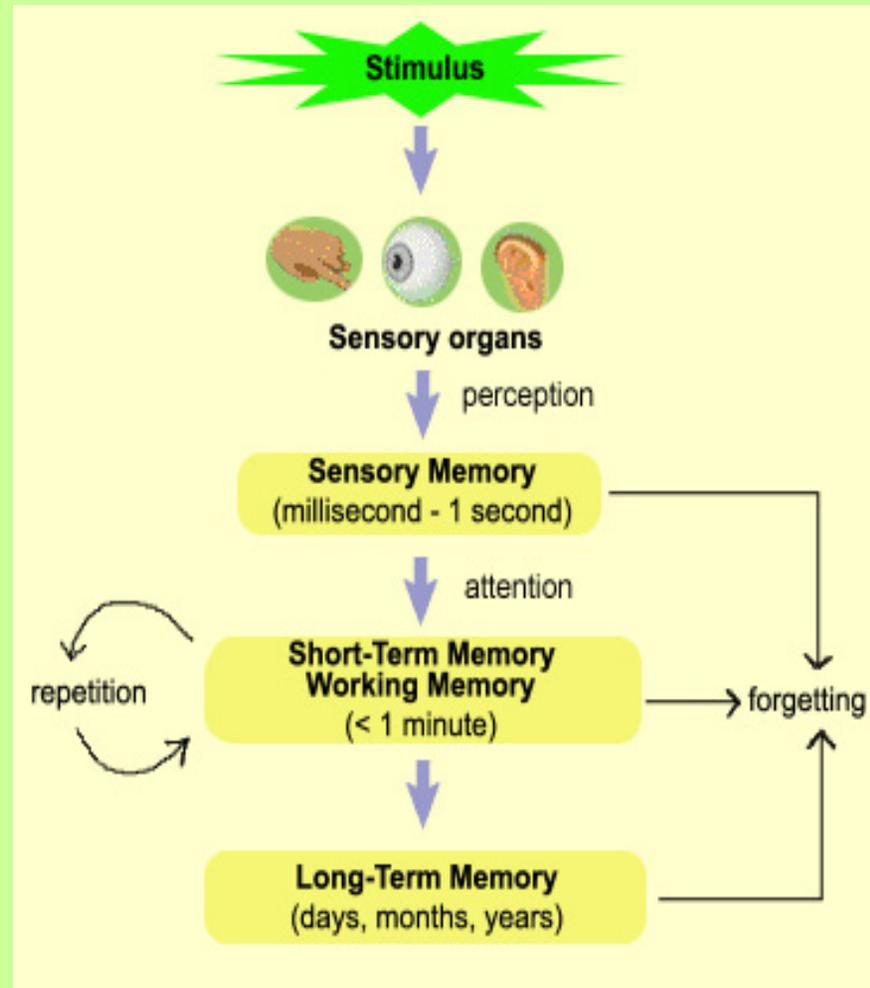
HOW DOES MEMORY WORK?

There are three steps to acquisition and retention of new memory:

- 1. Acquisition (new information that is temporarily stored)**
- 2. Consolidation (moving information from short term memory into long term memory)**
- 3. Retrieval (recalling information from nerve pathways)**

TYPES OF MEMORY

- **Sensory**
- **Short Term**
- **Long Term**



TYPES OF MEMORY

- Sensory
 - **Very brief - 1 second**
 - **Automatic perception obtained from senses**
 - **Examples: sound of wind, feel of clothing on body, smell of evergreen, light coming in the window**

TYPES OF MEMORY

- Short Term Memory
 - Temporary storage
 - Must use to retain
 - Limited capacity (can only retain 5-9 items in short term memory)

Examples of Short Term Memory

- Remembering a telephone number from the time you look up a number until the time you dial it
- Remembering locker combination or cell phone number



TYPES OF MEMORY

- Long Term Memory
 - **Storage of information important to you**
 - **Long Term Memory Process:**
 - **Encoding** (*Translating incoming information into a mental image that can be stored in memory*)
 - **Storage** (*A process of holding and consolidating information in our memory*)
 - **Retrieval** (Remembering something you want when you want it.)

Examples of Long Term Memory

- Steps needed to solve a division problem
- Log in process to the computer
- Rules of a game



HOW DOES A TRAUMATIC BRAIN INJURY AFFECT MEMORY?



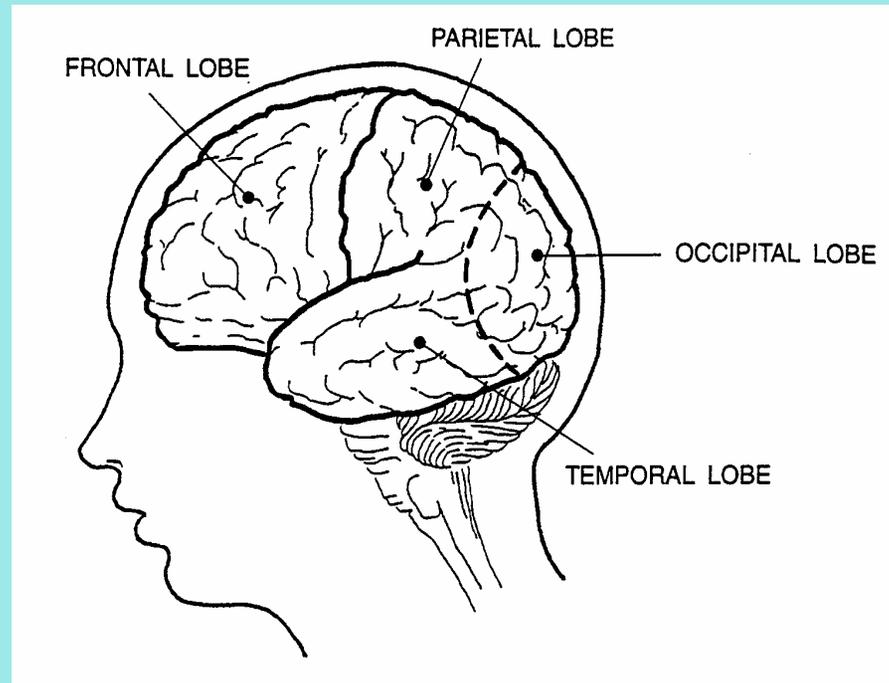
HOW DOES TBI AFFECT MEMORY?

- Neurons are like roads on a map
- After TBI, connections in the brain may be damaged or destroyed



HOW DOES TBI AFFECT MEMORY?

To understand how a brain injury adversely affects memory, it is important to know how specific areas of the brain contribute to learning.

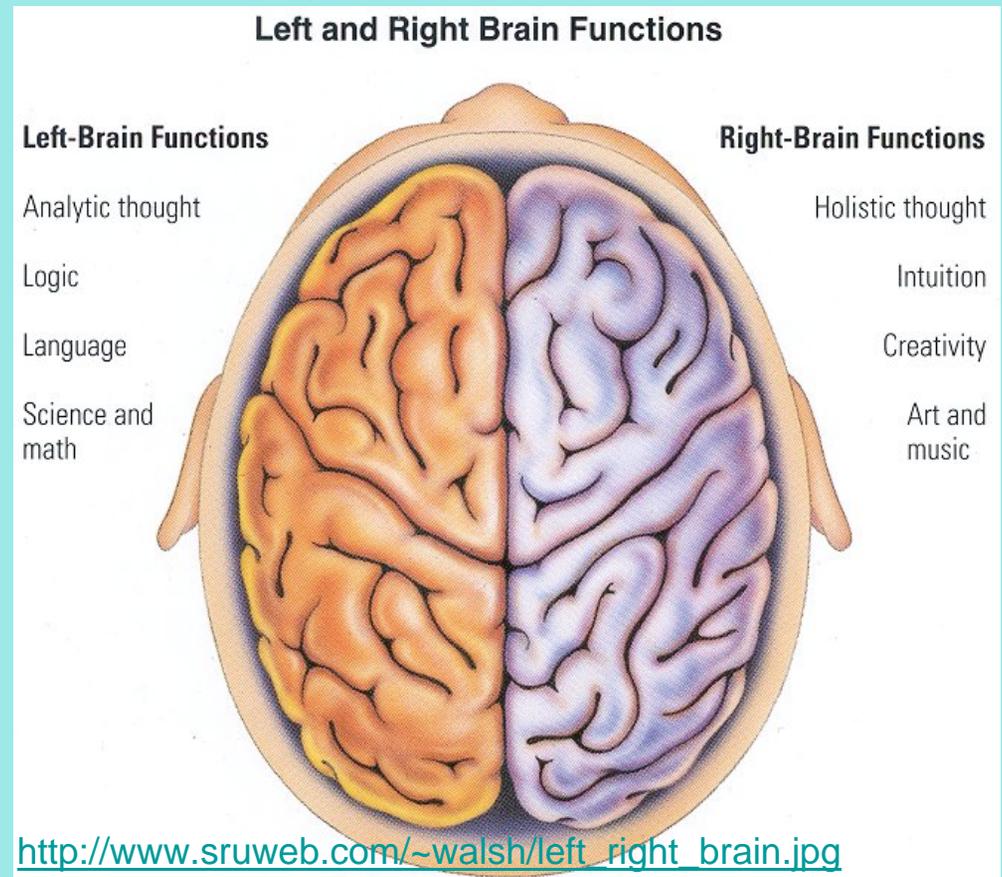


HOW DOES TBI AFFECT MEMORY?

- **Lobes of the brain**
 - **Frontal Lobe**
 - Executive functions (planning, initiating, self monitoring)
 - **Temporal Lobe**
 - Auditory information
 - Center for receptive and expressive language
 - Area of the brain that contributes to memory
 - **Occipital Lobe**
 - Visual information
 - **Parietal Lobe**
 - Receives and processes information from sensory and motor stimuli

HOW DOES TBI AFFECT MEMORY?

- **Left hemisphere**
 - **Language activities**
 - **Reading**
 - **Writing**
 - **Comprehension**
- **Right hemisphere**
 - **Spatial skills**
 - **Social perception**



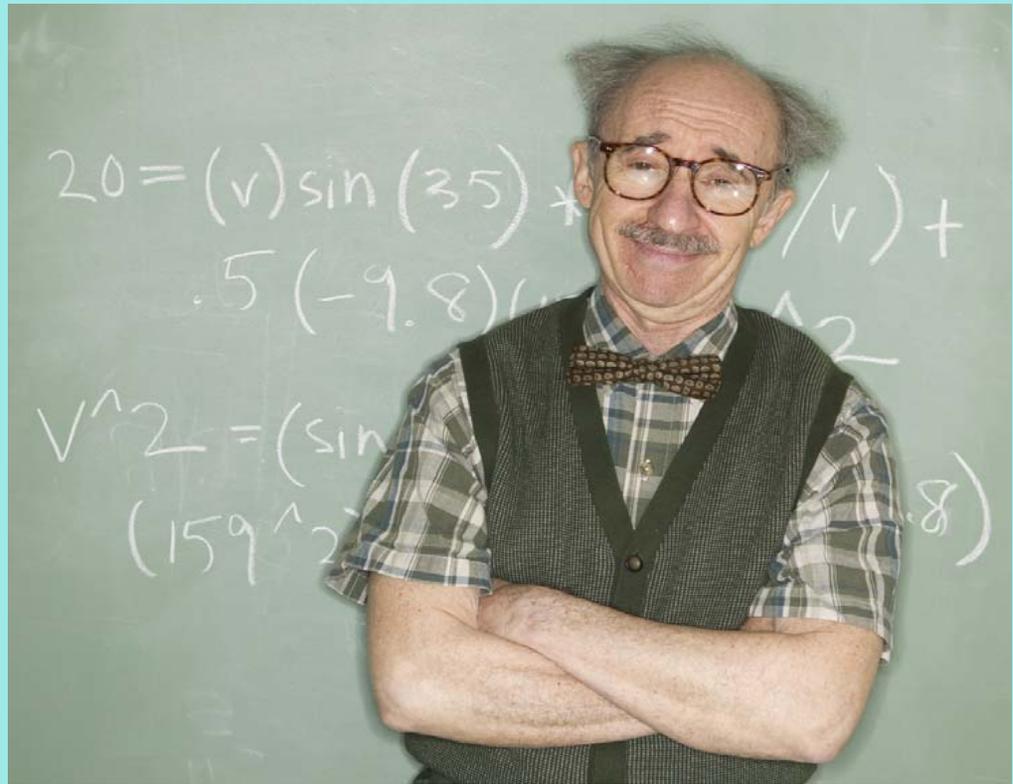
HOW DOES TBI AFFECT MEMORY?

- **What does the research say?**
 - Environmental modifications decrease the need for specific information from memory.
 - Many children with TBI have memory deficits especially in the area of verbal learning and verbal memory.
 - Difficulty with delayed recall, maintaining information, and using learning strategies are deficits that often persist.
 - Memory is one of the most frequently reported deficits one year after brain injury.

HOW DOES TBI AFFECT MEMORY?

- Teachers need to consider several variables in identifying appropriate educational interventions. They include:
 - Age
 - Significant at all ages
 - More severe impact on young students due to less preinjury knowledge base
 - Stage of Recovery
 - Determines types of intervention strategies (abstract, concrete)
 - Determines degree of independence (adult cuing, external aides)

- WHAT WILL THE TEACHER SEE IN THE CLASSROOM?



WHAT WILL THE TEACHER SEE IN THE CLASSROOM?

- **Difficulties with:**
 - Retaining information
 - Asking the same question over and over
 - Following classroom routine
 - Following multi-step directions
 - Remembering rules and consequences
 - Remembering to bring supplies to class, complete assignments
 - Learning new information
 - Remembering previously learned information

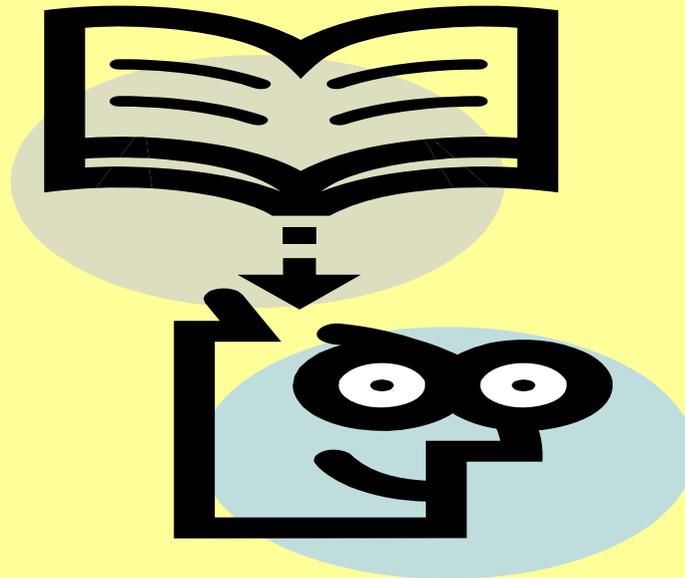
STRATEGIES



- When memory systems are disrupted due to a brain injury, a student needs new strategies to allow further learning to take place.

Types of Strategies

- Instructional Strategies
- Cued Recall
- External Memory Aides



TYPES OF STRATEGIES

1. Instructional Strategies: Strategies that are taught explicitly, with many opportunities to practice.

- Considering the brain injury, the teacher determines the best approach to use to achieve a learning objective.
- Taught and prompted by teachers
- “Teaching strategies” become “student strategies” when the student is able to use them independently.
- Example: Teach a student how and where to record assignments in their planner.

TYPES OF STRATEGIES

- 2. Cued Recall:** A memory task where the student is asked to recall items that were presented to them earlier.
- Better remembered when it is actively organized
 - Example: Read a passage and have student answer “Who was it about?” “Where did it occur?” “What happened?” “When?”

TYPES OF STRATEGIES

3. External Memory Aides:

- A memory aide that helps a student remember an event or a process.
- May involve rearranging the environment to help a student cope in the absence of adequate memory.
 - Examples: Visual schedules, memory lists, alarm clocks, diaries and “how to” notes, picture timelines, steps in solving a problem

RESOURCES FOR EDUCATORS

- ✓ **MEMORY CHECKLIST**
- ✓ **“LICE” SELECTION STRATEGY**
(learner, instruction, curriculum, environment)
- ✓ **GUIDELINES FOR SELECTING
STRATEGIES**
- ✓ **ACCOMMODATIONS/MODIFICATIONS**

- **“Before choosing an intervention strategy, it is important to identify a specific area of memory concern.”**

****TBI Memory Checklist***

TBI MEMORY CHECKLIST

- Tool used to identify specific difficulties so that effective strategies can later be identified.

TBI Memory Checklist

Please rate the student's behavior (in comparison to same-age classmates) using the following rating scale:

- Not at all
- Occasionally
- Often
- Very Severe & Frequent Problem

Not At All	Occasionally	Often	Very Severe & Frequent Problem	
				A. Orientation and Attention to Activity
				Does not remember day, date, personal information such as birth date, phone number, address
				Does not remember to finish task
				B. Starting, Changing, and Maintaining Activities
				Does not remember to start task
				Requires frequent prompts/reminders to continue working on an assignment
				Confused/agitate when schedule changes
				Does not remember when, who or how to ask for assistance when needed
				C. Taking in and Retaining Information
				Does not consistently remember schedule or "what comes next"
				Forgets things that happened (even in the same day)
				Problems learning new information and concepts

TBI MEMORY CHECKLIST

Not At All	Occasionally	Often	Very Severe & Frequent Problem	
				A. Orientation and Attention to Activity
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				Does not remember when, who or how to ask for assistance when needed
				C. Taking in and Retaining Information
				Does not consistently remember schedule or “what comes next”
				Forgets things that happened (even in the same day)
				Problems learning new information and concepts
				Difficulty remembering simple instructions and rules

TBI MEMORY CHECKLIST (Continued)

				Forgets classroom materials and assignments
				Does not follow through with previously established plans
				Forgets material learned from day to day (does better on quizzes than unit tests)
				D. Language Comprehension and Expression
				Difficulty maintaining the topic of a conversation
				Doesn't remember word meanings/definitions
				Difficulty remembering lengthy discussions
				Struggles to find a specific word
				E. Visual-Perceptual Processing
				Difficulty consistently finding classrooms/areas in the school
				F. Sequential Processing
				Unable to follow through when given multi-step directions
				G. Problem-Solving, Reasoning, and Generalization
				Does not use/remember compensatory strategies
				Gives up on challenging tasks if not provided with visual or auditory cues
				Confused with cause-effect relationships (rules and consequences)

TBI MEMORY CHECKLIST (Continued)

Not At All	Occasionally	Often	Very Severe & Frequent Problem	
				H. Organization and Planning Skills
				Difficulty breaking down complex tasks (pace completion of term pages or projects)
				I. Impulse or Self-Control
				Unable to attend for extended periods of time/losses place
				J. Emotional Adjustment
				Denies memory impairments resulting from injury
				Becomes angry when confronted with memory deficits

Wisconsin Traumatic Brain Injury Initiative (2006)

Learner, Instruction, Curriculum and Environment Targets (LICE Model)

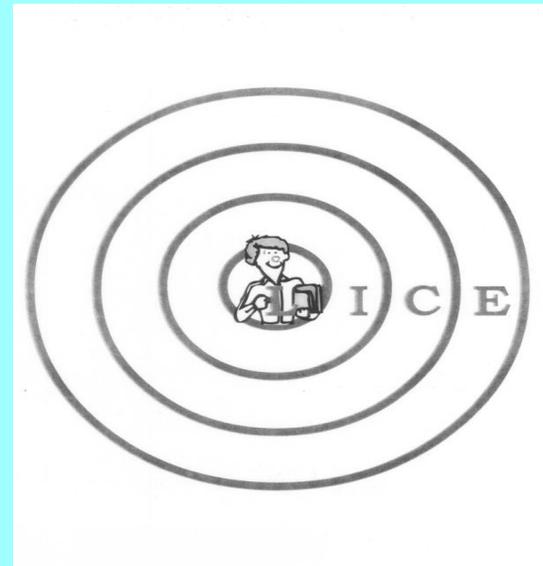
- Factors outside the learner influence skill development

L = Learner

I = Instruction

C = Curriculum

E = Environment



Kenneth W Howell (graphic *Wisconsin Traumatic Brain Injury Initiative (2006)*)

Memory Strategy Chart



	Strategies	Examples
Environment "E"	<ul style="list-style-type: none"> Visual schedules 	<ul style="list-style-type: none"> Post class rules: wall, desk; adapt class schedule: color code, map of school, pictures of teacher, large print.
	<ul style="list-style-type: none"> Assignment book Preferential seating Sensory awareness 	<ul style="list-style-type: none"> Date book: color code subject area; PDA: Auditory reminder; To Do List Near for proximity control and prompting, wall on one side Reduce classroom decorative clutter; projects hanging from ceiling cover shelves using soft green or blue; lighting: soften lights; olfactory: perfumes may cause nausea
	<ul style="list-style-type: none"> Modify length of day Class placement Peer support 	<ul style="list-style-type: none"> Start at 9:00 and leave at 2:00; develop consistent routines Quiet location: classroom not next to music room; highly structured teaching styles Buddy system, in service to peers about disabilities
Curriculum "C"	<ul style="list-style-type: none"> Give meaning to rote data Make it relevant to student Textbooks 	<ul style="list-style-type: none"> Verbal cues; link curriculum to interest of student: baseball stats to math concepts Experiential presentations; relate information to prior knowledge Multiple textbooks in different locations one at home one in classroom; reduce page clutter
Instruction "I"	<ul style="list-style-type: none"> Organize information 	<ul style="list-style-type: none"> Outline format, Graphic organizers, Study guide, Teach note taking skills (fill in the blanks); Highlight relevant information; Chunk information
	<ul style="list-style-type: none"> Errorless learning Mnemonic devices Control information presented at one time Pacing Match learning styles with teaching methods Frequently probe skill acquisition Demonstrate new tasks 	<ul style="list-style-type: none"> Provide breaks Speaking too slowly, speaking too fast, speaking softly, speaking too loudly Present multi sensory information, use movement associate facts with movement, regularly summarize presentation, alternate passive and active activities Check for mastery in different environments
Learner "L"	<ul style="list-style-type: none"> Rehearsal Use a journal Color coding Over learn material Picture supported material Focus on one activity at a time 	<ul style="list-style-type: none"> Practice in different environments Match symbol system to student abilities

Full Screen 
Close Full Screen

Guidelines for Selecting Strategies

- Involve the student in the selection of the strategies
- Start with simple strategies
- Plan strategies for natural environments
- Teach strategy to student
- Provide rehearsal and practice in the natural environments

Accommodations and Modifications in the Classroom

- **Accommodation** is when strategies are put into place that allow the student to access all of the general education curriculum.
- **Modification** is when strategies are put into place that modify or change curriculum but still allow a student access to some of the general education curriculum.
- See Accommodations/modification checklist

Accommodations & Modifications in Traumatic Classroom

For a Student with Traumatic Brain Injury

Student: _____ Teacher: _____ Grade: _____ Today's Date: _____
 Presenting Concerns: _____
 Birth Date: _____ Date of Injury: _____

Consider Students Environment

- Post class rules (pictures & words)
- Post daily schedule (pictures & words)
- Give preferential seating
- Change to another class
- Change schedule (most difficult in morning)
- Eliminate distractions (visual, auditory, olfactory)
- Modify length of school day
- Provide frequent breaks
- Provide place for quiet time
- Maintain consistent schedule
- Move class site to avoid physical barriers (stairs)
- Provide system for transition
- Position appropriately
- Explain disabilities to students
- Use color-coded materials

Consider Curricular Content & Expectations

- Reduce length of assignments
- Change skill/task
- Modify testing mode/setting
- Allow extra time
- Teach study skills
- Teach sequencing skills
- Teach visual imagery
- Teach memory strategies
- Write assignments in daily log
- Develop objective grading system using daily participation as a percentage of weekly and final grade
- Teach semantic mapping
- Teach peers how to be helpful

Consider Method of Instruction

- Repeat directions
- Increase active participation
- Teacher circulate around room
- Provide visual prompts (board/desk)
- Provide immediate feedback (self correcting seat work)
- Point out similarities to previous learning/work
- Use manipulative materials
- Use frequent review of key concepts
- Teach to current level of ability (use easier materials)
- Speak loud or slow or rephrase
- Preteach/Reteach
- Highlight/underline material
- Use peer tutor/partner
- Use small group instruction
- Use simple sentences
- Use individualized instruction
- Pause frequently
- Discuss errors and how they were made
- Use cooperative learning
- Use instructional assistants
- Encourage requests for clarification, repetition, etc.
- Elicit responses when you know student knows the answer
- Demonstrate & encourage use of technology (instructional and assistive)

Consider Student's Behavioral Needs

- Teach expected behavior
- Increase student success rate

Consider Student's Behavioral Needs – (Continued)

- Learn to organize signs of stress
- Give non verbal cues to discontinue behavior
- Reinforce positive behavior (4:1)
- Use mild, consistent consequences
- Set goals with student
- Use key students for reinforcement of target student
- Use group/individual counseling
- Provide opportunity to role play
- Use proactive behavior management strategies

Consider Assistive Technology

- Talking spell checker/dictionary
- Talking word processing software
- Concept mapping software/templates
- Word prediction software
- Multimedia software
- Keyguard for keyboard
- Macros/shortcuts on computer
- Abbreviation/expansion
- Accessibility option on computer
- Screen reader software
- Alternate keyboards
- Voice recognition software
- Communication cards or boards
- Voice output communication device
- Adaptive paper
- Single word scanners
- Enlarged text/magnifiers
- Recorded text/books on tape/e-text/ipod/MP3 player
- Scanned text with OCR software

Consider Assistive Technology (Continued)

- Voice output reminders
- Electronic organizers/PDA's/Palm computers
- Pagers/electronic reminders
- Large display calculators
- Talking calculators
- Voice input calculators
- Math software
- Portable word processor
- Picture supported software

Other Considerations

Home/School Relations

- Schedule regular meetings for all staff to review progress/maintain consistency
- Schedule parent conferences every _____
- Daily/weekly reports home
- Parent visits/contact
- Home visits

Disability Awareness

- Explain disabilities to other students
- Teach peers how to be helpful

Additional Resources

- Wisconsin Assistive Technology Checklist
- Therapists, nurse, resource teacher, school psychologist, counselor, rehab facility, parents, vision teacher, medical facility

Accommodations & Modifications in the Elementary Classroom

For a Student with Traumatic Brain Injury

Student: _____ Teacher: _____ Grade: _____ Today's Date: _____
 Presenting Concerns: _____
 Birth Date: _____ Date of Injury: _____

Consider Students Environment

- Post class rules (pictures & words)
- Post daily schedule (pictures & words)
- Give preferential seating
- Change to another class
- Change schedule (most difficult in morning)
- Eliminate distractions (visual, auditory, olfactory)
- Modify length of school day
- Provide frequent breaks
- Provide place for quiet time
- Maintain consistent schedule
- Provide system for transition
- Position appropriately
- Explain disabilities to students
- Use color-coded materials

Consider Curricular Content & Expectations

- Reduce length of assignments
- Change skill/task
- Modify testing mode/setting
- Allow extra time
- Teach study skills
- Teach sequencing skills
- Teach visual imagery
- Teach memory strategies
- Write assignments in daily log
- Teach semantic mapping
- Teach peers how to be helpful

Consider Method of Instruction

- Repeat directions
- Increase active participation

Consider Method of Instruction – (Continued)

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- Use mild, consistent consequences
- Set goals with student
- Use key students for reinforcement of target student
- Use group/individual counseling
- Teach student to attend to advance organizers at beginning of lesson
- Provide opportunity to role play
- Use proactive behavior management strategies
- Use schoolwide reinforcement with target students

Consider Assistive Technology

- Adaptive paper
- Talking spell checker/dictionary
- Concept mapping software/templates
- Magnetic words, letters, phrases
- Multimedia software
- Keyguard for keyboard
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- Alternative keyboards
- Communication cards or boards
- Voice output communication device
- Portable word processor
- Enlarged text/magnifiers
- Recorded text/books on tape/talking books

Consider Assistive Technology (Continued)

- Scanned text with OCR software
- Voice output reminders
- Electronic organizers/reminders/pager
- Large display calculators
- Voice input calculators
- Math software
- Picture/symbol supported software

Other Considerations

Home/School Relations

- Schedule regular meetings for all staff to review progress/maintain consistency
- Schedule parent conferences every _____
- Daily/weekly reports home
- Parent visits/contact
- Home visits

Disability Awareness

- Explain disabilities to other students
- Teach peers how to be helpful
- In-service training for school staff

Additional Resources

- Wisconsin Assistive Technology Checklist
- Therapists, nurse, resource teacher, school psychologist, counselor, rehab facility, parents, vision teacher, medical facility

BRINGING IT ALL TOGETHER:

Student Example

“Remy”

Background/Medical

- 12 year old boy
- Hit by car while skateboarding
- No helmet
- Unconscious for 30 minutes
- Frontal and left temporal lobe injuries
- Other injuries include broken bones and cuts
- Hospitalized for four days, recovering for two weeks at home prior to return to school

Initial Brain Injury Symptoms

- Unable to remember events of the preceding day
- Confusion
- Irritability
- Asks questions over and over

Student Example

Educational Information

- **Preinjury status**
 - **Good student**
 - **Lots of Friends**
 - **Active in Sports**
- **Post Injury Status**
 - **Special education programming for speech/language and study skills**

Impact of TBI on Current School Performance

- **Difficulty remembering events and information**
- **Not completing homework**
- **Headache and fatigue**
- **Difficulty with new learning**
- **Poor Organizational skills**
- **Inconsistent performance**
- **Difficulty focusing or attending to activities**
- **Behavior**
 - **Poor relationship with peers**
 - **Loner at school**
 - **Verbal outbursts during independent study time**
- **Grades are Cs, Ds, Fs**

PROBLEM IDENTIFICATION WORKSHEET

- **Tool used to guide the team action planning**
 - **Basic Components:**
 - **Problem Identification**
 - **Link to Brain Injury**
 - **Student Strength/Interests**
 - **Previous Interventions**
 - **Goal/Desired Outcome**
 - **Targets/Who/Timeline**
 - **Strategies**
 - **Evaluation**

Problem Identification/Intervention Worksheet

Problem:	
Link to Brain Injury:	
Student Strengths/Interests:	
Previous Interventions:	
Goal/Desired Outcome:	
Targets: Who: Timelines:	
Strategies:	

Example: What is the problem?

Problem Identification/Intervention Worksheet

Problem:	
Link to Brain Injury:	
Student Strengths/Interests:	
Previous Interventions:	
Goal/Desired Outcome:	
Targets: Who: Timelines:	
Strategies:	

Example: What is the problem?

Problem Identification/Intervention Worksheet

Problem:	Remy does not retain information, e.g. schedule, assignment, names, locations. Remy is especially having difficulty with new learning. This difficulty is affecting Remy at school, at home and in social interactions with his friends and classmates. 
Link to Brain Injury:	
Student Strengths/Interests:	
Previous Interventions:	
Goal/Desired Outcome:	
Targets: Who:	

Example: What are the links to the brain injury?

Problem Identification/Intervention Worksheet

Problem:	Remy does not retain information, e.g. schedule, assignment, names, locations. Remy is especially having difficulty with new learning. This difficulty is affecting Remy at school, at home and in social interactions with his friends and classmates.
Link to Brain Injury:	
Student Strengths/Interests:	
Previous Interventions:	
Goal/Desired Outcome:	
Targets: Who:	

Example: What are the links to the brain injury?

Link to Brain Injury:

- ✓ Memory problems are common with TBI
- ✓ Frontal lobe brain injuries often result in the student having trouble with organizing their work and focusing attention
- ✓ Injury to the left side of the brain often results in difficulties with language, writing, and comprehension
- ✓ Injury to the temporal lobe can result in difficulty processing auditory information and initiating conversation.
- ✓ Temporal lobe is responsible for forming memories, including new information
- ✓ Since the TBI is often a “hidden disability” and the ill effects of the accident on the brain cannot be visually seen; educators and parents as well as the student with TBI, often do not realize that difficulties experienced may be directly related to the TBI.
- ✓ Once information regarding TBI's affect on learning and behavior has been given to them, educators have many strategies that they can use to address learning difficulties experienced by students with a TBI.



Example: What are the student's strengths and interests?

Problem Identification/Intervention Worksheet

Problem:	Remy does not retain information, e.g. schedule, assignment, names, locations. Remy is especially having difficulty with new learning. This difficulty is affecting Remy at school, at home and in social interactions with his friends and classmates.
Link to Brain Injury:	<ul style="list-style-type: none"> ✓ Memory problems are common with TBI ✓ Frontal lobe brain injuries often result in the student having trouble with organizing their work and focusing attention ✓ Injury to the left side of the brain often results in difficulties with language, writing, and comprehension ✓ Injury to the temporal lobe can result in difficulty processing auditory information and initiating conversation. ✓ Temporal lobe is responsible for forming memories, including new information ✓ Since the TBI is often a "hidden disability" and the ill effects of the accident on the brain cannot be visually seen, educators and parents as well as the student with TBI, often do not realize that difficulties experienced may be directly related to the TBI. ✓ Once information regarding TBI's affect on learning and behavior has been given to them, educators have many strategies that they can use to address learning difficulties experienced by students with a TBI.
Student Strengths/Interests:	
Previous Interventions:	
Goal/Desired Outcome:	
Targets: Who: Timelines:	
Strategies:	
Evaluation:	

Example: What are the student's strengths and interests?



Student Strengths/Interests:

- ✓ Good Student
- ✓ Popular with many friends
- ✓ Participated and active in many team sports
- ✓ Parents are supportive

Example: What previous interventions have been done?

Problem Identification/Intervention Worksheet

Problem:	Remy does not retain information, e.g. schedule, assignment, names, locations. Remy is especially having difficulty with new learning. This difficulty is affecting Remy at school, at home and in social interactions with his friends and classmates.
Link to Brain Injury:	<ul style="list-style-type: none"> ✓ Memory problems are common with TBI ✓ Frontal lobe brain injuries often result in the student having trouble with organizing their work and focusing attention ✓ Injury to the left side of the brain often results in difficulties with language, writing, and comprehension ✓ Injury to the temporal lobe can result in difficulty processing auditory information and initiating conversation ✓ Temporal lobe is responsible for forming memories, including new information ✓ Since the TBI is often a “hidden disability” and the ill effects of the accident on the brain cannot be visually seen; educators and parents as well as the student with TBI, often do not realize that difficulties experienced may be directly related to the TBI. ✓ Once information regarding TBI's affect on learning and behavior has been given to them, educators have many strategies that they can use to address learning difficulties experienced by students with a TBI.
Student Strengths/Interests:	<ul style="list-style-type: none"> ✓ Good Student ✓ Popular with many friends ✓ Participated and active in many team sports ✓ Parents are supportive 
Previous Interventions:	
Goal/Desired Outcome:	
Targets: Who: Timelines:	
Strategies:	
Evaluation:	

Example: What previous interventions have been done?

Previous Interventions:	<p>Prior to the accident, Remy was a positive participant in the classroom and required no additional classroom interventions. Since the accident, Remy continues to receive out-patient OT and PT and receives Speech and Language two times a week during his school day.</p>
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Example: What is the goal or desired outcome?

Problem:	Remy does not retain information, e.g. schedule, assignment, names, locations. Remy is especially having difficulty with new learning. This difficulty is affecting Remy at school, at home and in social interactions with his friends and classmates.
Link to Brain Injury:	<ul style="list-style-type: none"> ✓ Memory problems are common with TBI ✓ Frontal lobe brain injuries often result in the student having trouble with organizing their work and focusing attention ✓ Injury to the left side of the brain often results in difficulties with language, writing, and comprehension ✓ Injury to the temporal lobe can result in difficulty processing auditory information and initiating conversation. ✓ Temporal lobe is responsible for forming memories, including new information ✓ Since the TBI is often a “hidden disability” and the ill effects of the accident on the brain cannot be visually seen, educators and parents as well as the student with TBI, often do not realize that difficulties experienced may be directly related to the TBI. ✓ Once information regarding TBI’s affect on learning and behavior has been given to them, educators have many strategies that they can use to address learning difficulties experienced by students with a TBI.
Student Strengths/Interests:	<ul style="list-style-type: none"> ✓ Good Student ✓ Popular with many friends ✓ Participated and active in many team sports ✓ Parents are supportive
Previous Interventions:	Prior to the accident, Remy was a positive participant in the classroom and required no additional classroom interventions. Since the accident, Remy continues to receive out-patient OT and PT and receives Speech and Language two times a week during his school day.
Goal/Desired Outcome:	
Targets: Who: Timelines:	
Strategies:	
Evaluation:	

Example: What is the goal or desired outcome?

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Goal/Desired Outcome:	Remy, his family and his teachers will be given strategies to increase Remy's ability to retain new information, including new course material in the classroom.
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Example: What are the targets? (Who/timeline)

	<ul style="list-style-type: none"> ✓ Injury to the left side of the brain often results in difficulties with language, writing, and comprehension ✓ Injury to the temporal lobe can result in difficulty processing auditory information and initiating conversation. ✓ Temporal lobe is responsible for forming memories, including new information ✓ Since the TBI is often a “hidden disability” and the ill effects of the accident on the brain cannot be visually seen, educators and parents as well as the student with TBI, often do not realize that difficulties experienced may be directly related to the TBI. ✓ Once information regarding TBI's affect on learning and behavior has been given to them, educators have many strategies that they can use to address learning difficulties experienced by students with a TBI.
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Goal/Desired Outcome:	Remy, his family and his teachers will be given strategies to increase Remy's ability to retain new information, including new course material in the classroom.
Targets: Who: Timelines:	
Strategies:	
Evaluation:	

Example: What are the targets? (Who/timeline)

Targets: Who: Timelines:	Remy, his teachers, his family Meet bi-weekly for progress and program revisions
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Example: What intervention strategies will be tried?

	<p>difficulty is affecting Remy at school, at home and in social interactions with his friends and classmates.</p>
Link to Brain Injury:	<ul style="list-style-type: none"> ✓ Memory problems are common with TBI ✓ Frontal lobe brain injuries often result in the student having trouble with organizing their work and focusing attention ✓ Injury to the left side of the brain often results in difficulties with language, writing, and comprehension ✓ Injury to the temporal lobe can result in difficulty processing auditory information and initiating conversation. ✓ Temporal lobe is responsible for forming memories, including new information ✓ Since the TBI is often a “hidden disability” and the ill effects of the accident on the brain cannot be visually seen, educators and parents as well as the student with TBI, often do not realize that difficulties experienced may be directly related to the TBI. ✓ Once information regarding TBI’s affect on learning and behavior has been given to them, educators have many strategies that they can use to address learning difficulties experienced by students with a TBI.
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Goal/Desired Outcome:	<p>Remy, his family and his teachers will be given strategies to increase Remy’s ability to retain new information, including new course material in the classroom.</p>
Targets:	Remy, his teachers, his family
Who:	Meet bi-weekly for progress and program revisions
Timelines:	
Strategies:	
Evaluation:	

Example: What intervention strategies will be tried?



Strategies:

- ✓ Student-Specific TBI in-service for teaching staff.
- ✓ Using the Memory Strategy Checklist, select strategies that can be used for Remy; for example, modify the learning environment for Remy so strategies for learning and retaining new material
- ✓ Use organizer and academic support team classroom at beginning and end of day
- ✓ Visual cues in his classroom and home
- ✓ Use teacher communication checklist for accountability and classroom activities, including new material that was presented
- ✓ Modification and Accommodations in classroom expectations (shorter assignments, copies of class notes)
- ✓ Referral to guidance for strategies for social interactions

Example: Evaluation-How will we know the strategies were successful?

	<ul style="list-style-type: none"> ✓ Since the TBI is often a “hidden disability” and the ill effects of the accident on the brain cannot be visually seen, educators and parents as well as the student with TBI, often do not realize that difficulties experienced may be directly related to the TBI. ✓ Once information regarding TBI's affect on learning and behavior has been given to them, educators have many strategies that they can use to address learning difficulties experienced by students with a TBI. 	
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Targets: Who: Timelines:	Remy, his teachers, his family Meet bi-weekly for progress and program revisions	
Strategies:	<ul style="list-style-type: none"> ✓ Student-Specific TBI in-service for teaching staff. ✓ Using the Memory Strategy Checklist, select strategies that can be used for Remy; for example, modify the learning environment for Remy so strategies for learning and retaining new material ✓ Use organizer and academic support team classroom at beginning and end of day 	
	<ul style="list-style-type: none"> ✓ Visual cues in his classroom and home ✓ Use teacher communication checklist for accountability and classroom activities, including new material that was presented ✓ Modification and Accommodations in classroom expectations (shorter assignments, copies of class notes) ✓ Referral to guidance for strategies for social interactions 	
Evaluation:		

Example: Evaluation-How will we know the strategies were successful?

Evaluation:	The success of these interventions and strategies will be from: Review of notes from daily teacher communication checklist Notes from bi-weekly meetings Individual Educational Plan Parent Input Student Input
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<p>Problem:</p>	<p>Remy does not retain information, e.g. schedule, assignment, names, locations. Remy is especially having difficulty with new learning. This difficulty is affecting Remy at school, at home and in social interactions with his friends and classmates.</p>
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<p>Goal/Desired Outcome:</p>	<p>Remy, his family and his teachers will be given strategies to increase Remy’s ability to retain new information, including new course material in the classroom.</p>
<p>Targets: Who: Timelines:</p>	<p>Remy, his teachers, his family Meet bi-weekly for progress and program revisions</p>
<p>Strategies:</p>	<ul style="list-style-type: none"> ✓ Student-Specific TBI in-service for teaching staff. ✓ Using the Memory Strategy Checklist, select strategies that can be used for Remy, for example, modify the learning environment for Remy so strategies for learning and retaining new material ✓ Use organizer and academic support team classroom at beginning and end of day ✓ Visual cues in his classroom and home ✓ Use teacher communication checklist for accountability and classroom activities, including new material that was presented

CONCLUSION: KEY POINTS

- Identify specific memory issues (TBI Memory Checklist)
- Determine the effect of the brain injury on student's learning/memory
- Determine the targets of intervention (LICE Memory Strategies Chart)
- Identify, implement and evaluate specific intervention strategies (Problem Identification/Intervention Worksheet)

CONCLUSION: TOOLS

- Sensory Memory Types Chart
- TBI Memory Checklist
- Memory Strategies
- TBI Accommodations and Modifications (Elementary)
- TBI Accommodations and Modifications (Secondary)
- Problem Identification Worksheet

ADDITIONAL RESOURCES

- Wisconsin Traumatic Brain Injury Initiative (www.dpi.wi.gov/sped/tbi.html)
 - Level I TBI Training Materials
 - TBI CESA Trainers
 - TBI Resource Kit
- Website Links
 - Listed in Memory Module Resource Guide and on website

WISCONSIN MEMORY MODULE

PRESENTERS:

- **Judy O’Kane:** Judy is the Wisconsin Department of Public Instruction’s state special education consultant for Traumatic Brain Injury (TBI) and is director to the Wisconsin Traumatic Brain Injury Initiative. She is also the state special education consultant for Other Health Impairment (OHI) and Orthopedic Impairment (OI). She is a former special education director and teacher who has extensive experience in the area of behavior management.
- **Kathy Wanat:** Kathy is a traumatic brain injury state trainer for the Wisconsin TBI initiative. She has coauthored several of the tools available through the initiative including the level I and level II state TBI trainings. She is a special education consultant at CESA 6 in the areas of Cognitive Disabilities, TBI and OHI.