

# Using Mnemonics and Visual Imagery Intervention Strategies with TBI Survivors with Persistent Memory Impairments

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## Types of Memory Deficits Associated with TBI

Short term	Immediate recall of newly learned verbal and visual information
Recent	Delayed recall (approximately 30 minutes) of newly learned information
Long term	Recall of information after an extended time lapse—including general knowledge information, content-specific information, and personal and biographical information
Procedural	Recall of an acquired pattern or process (e.g., riding a bike)
Prospective	Recall of information needed in the near future (e.g., remembering to call a doctor to obtain test results)
Episodic	Recall of temporally dated events and the temporal-spatial relation between events

## Functional Impact

### Vocational and academic performance

- Reacquisition of old knowledge; problems with new learning

### Social functioning

- Remembering information about others; face-name associations

### Independent living

- Remembering appointments; remembering to do things

## Memory Strategies

### Visual imagery

- Impossibly imagined stories
- Imagining items in various locations

### Mnemonics

- 1 = bun; 2 = shoe; etc.
- Use of acronyms

### Memory aids

- Calendars, daily planners, journals

Hux, K., Manasse, N. J., Wright, S., & Snell, J. (in press). Effect of training frequency on face-name recall by adults with traumatic brain injury. *Brain Injury*.

## Purpose

To evaluate the effectiveness of using visual imagery and mnemonic strategies to facilitate the learning of face-name associations by TBI survivors with persistent memory deficits

To determine which of three frequencies of intervention sessions best facilitated the learning of face-name associations

## Participants

7 male survivors of severe TBI residing in a transitional living facility

- At least 1 year post-injury
- Non-aphasic - WAB Aphasia Quotients above 93.8
- Severe and persistent memory deficits affecting face-name recall

## Intervention Materials

### Color photographs of staff members

- Divided into four sets
  - Three sets of three photographs each served as target stimuli - one set for each phase
  - One set of six photographs served as alternates

### Mnemonic statements

- Mike: “Imagine Mike speaking into a microphone”

### General comments about facial features

- “Look at the hair”
- “Notice whether the person is wearing glasses”

## Intervention Procedures

### Baseline Activity

Baseline probes performed to establish that a participant could not name any of the people photographed

- 15 photographs presented in random order
- Participant instructed to name each person
- No feedback provided
- 3 consecutive days of 0% accuracy

## Intervention Procedures

### Probe Activity

Probe activities performed to establish a participant's progress in making face-name associations

Occurred at the beginning of each training session

Same procedure as used for baseline probes

## Intervention Procedures

### Training Activity

Performed following probe activity

3 target photographs presented in random order

10 second pre-exposure period

Trainer read 2 general comments ("Look at the hair")

Trainer stated and participant repeated staff member's name

Trainer stated and participant repeated mnemonic statement

5 second interval between target photos

Entire sequence repeated 5 times each session

## Demonstration



## Experimental Design

Modified multiple-baseline design

Each of 3 phases used a separate set of 3 pictures and a different frequency of training

Frequency of training:

- 5 times per day
- 1 time per day
- 2 times per week

Training phases were counterbalanced to prevent order effects

## Criterion for Advancement through Phases

Phases referred to frequency of training

- 5 times per day
- 1 time per day
- 2 times per week

Move to next phase when:

- all 3 photos correctly named during 3 consecutive sessions

OR

- after the completion of 25 sessions

## Incidental Learning

All participants had exposure to staff members' names on daily basis

Baseline performance demonstrated that incidental exposure was insufficient for learning names

However, if participant correctly named an untrained photo in 3 consecutive sessions, photo was replaced with one from an alternate set







## Summary

Visual imagery and mnemonic strategies facilitate the learning of face-name associations in about half of survivors of severe TBI who have not previously been successful in learning such information

### Training frequency

- One time per day and two times per week are more than effective than five times per day
- Behavior problems emerge with more frequent training sessions

## Still Unknown

Why was the strategy effective for some survivors and not for others?

Does the length of pre-exposure impact learning and mastery?

## Still Unknown

Would adding an auditory component (i.e., a tape recording of the person's voice stating his/her name and the mnemonic) facilitate learning face-name associations among those survivors who did not benefit from the current procedures?

Do survivors generalize the use of face-name associations to real-world settings after mastering them in training sessions?