

UNDERSTANDING, DEVELOPING, AND STRENGTHENING MEMORY, by Jaime Fatás-Cabeza

YES, MEMORY IMPROVES IF YOU WORK AT IT!

It makes you smarter!

Fences-off aging!

It has myriads of overall beneficial side effects.

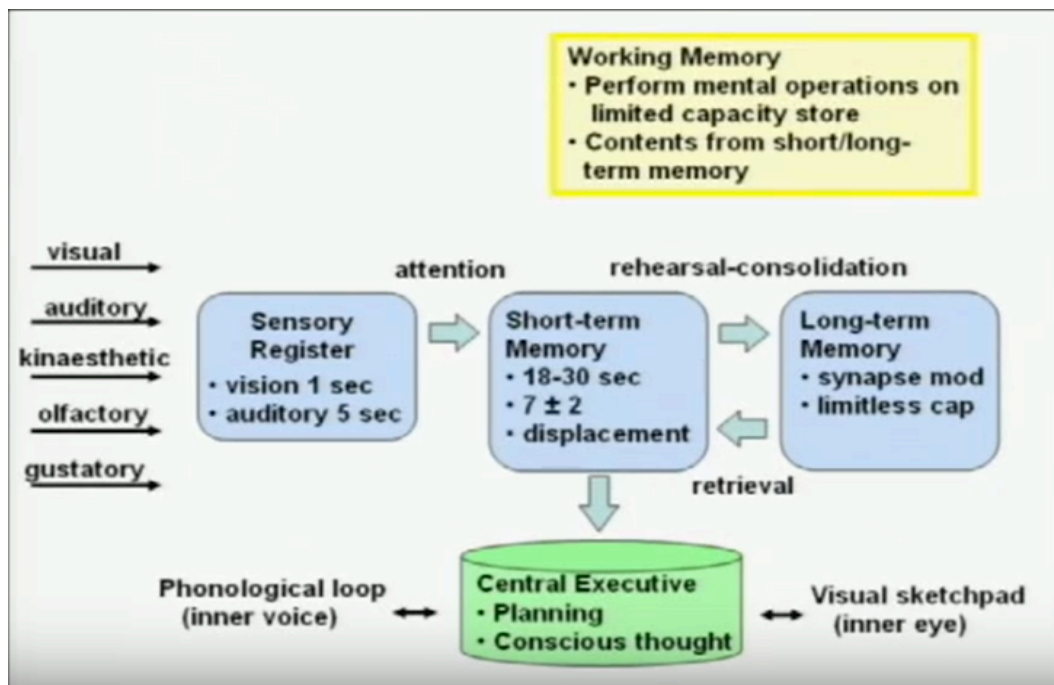
The plasticity of the brain is amazing!

Just think about how important memory is for who we are and everything we do.

Below you'll find basic yet important notions related to how memory works, the relevant types of memory, the executive function of memory and the mechanisms of **memory consolidation: attention, repetition, manipulation**

Knowing those is necessary to make a productive use of memory in CI. **Share them with your trainees.**

Working model of memory



This is a working model of memory after Atkinson and Shiffrin's models (60s to 90s), as explained by Dr. Luongo, MD, PhD, Chair, Department of Neurology, Stanford University (2010) in this lecture: https://www.youtube.com/watch?v=a_HfSnQqeyY&t=891s

This model has been criticized for various reasons. I am using it here because I believe it is fundamentally sound and a reliable and compact way to understand fundamental memory processes and components.

EXPLANATION (very brief, simplified) AND USES

Sensory input comes into the sensory registers of the brain, but it is **present only for a few seconds**. If we want **to retain this input** in short-term memory (ST), **we need pay attention**. If **we pay attention**, it will last in short-term for up to half a minute.

Limits: ST memory can remember a limited number of items and is vulnerable to displacement: once it reaches its limit it starts “discarding, forgetting” content.

To retain information stored in ST and to move into long-term memory (LT), **we need to rehearse, to review** the information. **When this is done frequently through a period of time, we can** consolidate the information and **move it into long-term memory**.

LT has unlimited capacity and modifies the synapses of the brain (alters our anatomy and physiology).

To organize, plan and manage the information stored in ST and LT, the central executive function uses working memory (WM). WM manipulates data stored in short and long term memory and ultimately helps with decision making.

Simple examples of operations that require executive function are arithmetic operations like adding or subtracting, or spelling a word backwards.

Let’s say we want to multiply 25×15 . In order to perform this operation, it is necessary to remember the numbers and the operation to be performed (in ST), pull stored knowledge (from LT) about how to perform the operation, perform it and saving the partial the results of the intermediary operations (using WM), and then manipulating them to produce a final result.

Consecutive interpretation requires the intensive use of memory.

Trainees should be aware of the importance of memory. Help them understand how it works, and encourage conscious control by using attention and repetition for consolidation, and executive function to organize, manipulate, and manage content.

The processes described above are applicable to CI in healthcare encounter. Use academic (study of anatomy, physio, etc.) and clinical scripts to develop awareness and functional usage of memory. These can be used for macro and micro analysis and chunking for memory development and effective consolidation/reduction of the number of items to be memorized.

Memory techniques

Keep memory in good shape by making the right lifestyle choices and by exercising it.

Main procedures: repetition, association, chunking, visualization, loci/memory palace

Techniques can/should be combined

Encourage students to try the techniques to figure out what works for each of them

Some techniques:

Places, names and dates: use repetition and association with something meaningful to you, or physical features. Use inner eye and picture an image to create a mental snapshot.

Lists: *use devices such as patterns of letters, acronyms, acrostics. Group by categories, chronology, purpose (procedures, devices, medication)*

Story system: *Good for narratives. Create a story in order to memorize the information (accompanied with imagining the story in your head)*

Peg systems: “sound alike” *rhyming pegs, alphabet pegs. Create a “mental hook” to help you associate information you already know (numbers, letters) with new facts.*

The Loci or memory palace method: *(see Visualization) visualizing a well-known place and placing items or information in that place in order to recall it.*

Visualization: very useful for action scenes and narratives. Painting the picture or playing the movie in your mind of the content of the statement. When you interpret, you describe the picture or the movie in your target language. This technique works best when there is much information of a graphic nature, action, or when locations, directions or spatial arrangements (for example, description of a house, room, or objects) are involved.

Chunking, or grouping, or segmenting: arranging information by units of meaning or meaningful patterns to *consolidate, increase capacity, avoid getting overwhelmed.*

Process information...

- ✓ *As an imaginary grid of questions (Who? What? Where? When? Why?);*
- ✓ *Sequentially (first, second, third and finally);*
- ✓ *As a chain of causes, effects, and logical inferences.*
- ✓ *As sound (revved engine, screeching, crash)*
- ✓ *As a visual, cinematic story*

Try them all to figure out what works for each individual

PRINCIPLES OF NOTE-TAKING (NT), by Jaime Fatás-Cabeza

OF THE UTMOST IMPORTANCE:

Before starting with NT, make sure you understand and are proficient with chunking, message analysis

Memory first. Develop your memory. Use NT to support your memory

Basic principles of NT formulated (first) by Rozan, and later refined by Sleskovitch, Gillies and others include:

Memory first. Develop your memory. Use note-T to help your memory

Annotate:

The main ideas

The links between ideas

Non-contextualized information

Verb tenses

Use abbreviations and/or symbols. Less is more.

Organize the information graphically in a diagonal fashion, using Shift and Verticality

PURPOSE OF NOTES

The purpose of notes is twofold:

- **CAPTURE:** Retain the content of the discourse
- **TRIGGER MEMORY:** Help the interpreter render that content in the target language (for which you'll need the ability to interpret your own code)

For Seleskovitch, notes are only an aide, a “**crutch**.” The cognitive work of assimilating the speech and rendering it is what's essential:

“Taking notes for a consecutive interpretation does not mean encoding the speech in written form – note-taking is not the same as taking dictation.”

NOTES ABOUT NOTES

- Once the speaker has finished, the speech **SHOULD BE** more present in the mind of the interpreter than in his/her notes.
- Notes are used to prompt memory rather than reproduce the discourse.
- Notes are personal, and embedded meaning fades away quickly.

HOW AND WHAT TO NOTE

- Notes usually consist of a **mixture of linguistic and graphic features**: words, signs, symbols, abbreviations, and drawings.
- Only the **bare bones** should be noted, **to be fleshed out later**, when reformulating the message in the target language.
- **Ideas noted by key words, symbols or pictures** may later help the interpreter recall an entire passage (“Mind Mapping”).
- If the **interpreter pays attention to the “macro-text”** (the “sense”), then the details or “micro-text” will fall into place.
- Rhetorical words, words that signal an intended register, **words of exceptional recurrence**.
- **TRANSCODABLE terms (facts, figures, names, technical terms)**: Information that is not easily stored and retrieved from memory should be noted.
- **Numbers** are easy to forget (they mean little out of context).
- **Lists** (series of words not integrated into sentences which give them sense) should also be noted because they overload the memory.
- Always note the “**punch line**”!

HOW MUCH TO NOTE

- Highly variable, depends on the interpreter’s knowledge of the subject.
- If the topic is familiar, a *single* word may suffice. *Fire!* For a fireman; Note-T for an interpreter.

- If the text is informative and loaded with unfamiliar facts, more notes may be necessary.
- Well-structured *argumentative* texts may lend themselves to very few notes, “mostly links and key terms.”

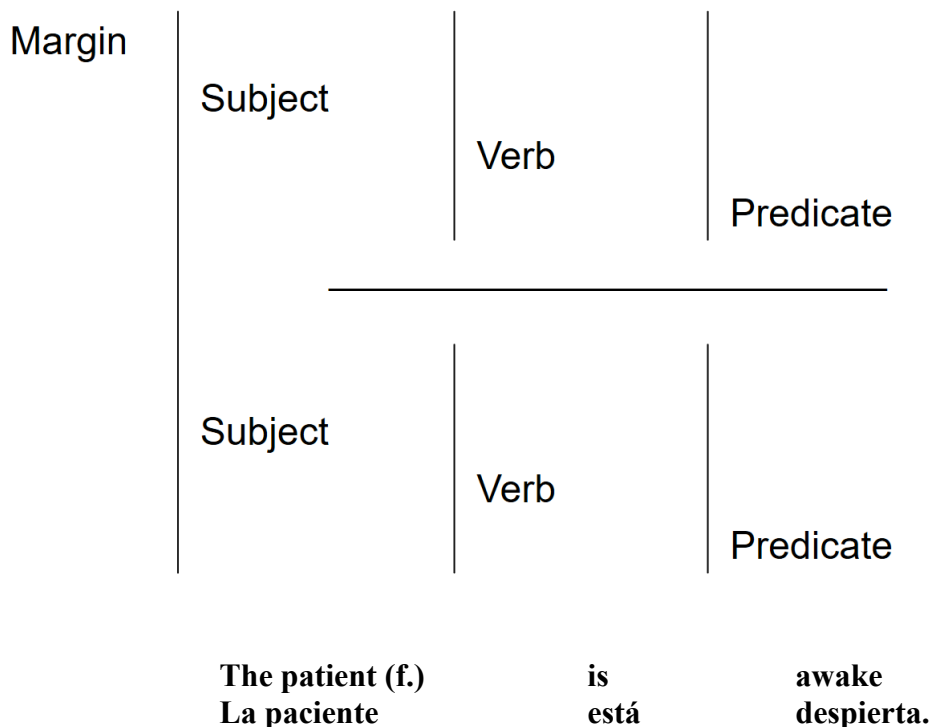
IN WHAT LANGUAGE?

- In this regard, interpreting theoreticians differ. Seleskovitch argues that notes should be taken in the target language, while Rozan and Gile favor the opposite.

“writing notes in the target language theoretically requires more processing capacity than writing them in the source language because of the capacity required for conversion.” D. Gile

LAYOUT: DEFAULT POSITION OF NOTES ON PAGE

This default position reflects the most common syntactic structure in English and Spanish. It may need to be adjusted for other languages.



WHY NOTE DIAGONALLY ACROSS THE PAGE?

EASIER TO READ BACK: Because there is less writing on a page, the ideas stand out.

VISIBLE STRUCTURE: The structure of the speech is visible at a glance, the location of a given sign or symbol on the page can itself convey meaning (parallelism, precedence, subordination, anteriority-posteriority, cause-effect, origin-destination, active-passive, etc.).

THE BEGINNING OF EACH IDEA is noted furthest to the left on the page, so we see it first.

NO SYNTACTIC INTERFERENCE: Something that horizontal notes encourage.

SPACE FOR ADITIONS: In case we need to add detail.

USES OF THE MARGIN

Linking words (Relationals)

SYMBOLS AND ABBREVIATIONS

Rule of thumb: **EFFICIENCY** and **ECONOMY**

Symbols should be:

- Clear and unambiguous
- Quick and simple to draw
- Prepared in advance and instantly familiar
- Consistent
- Meaningful for you

Use symbols you already know/use and text messaging symbols and abbreviations such as, bc for *because*, b4 for *before*, ex for *for example*, PT for *part-time*, 2 for *to* (and combinations, 2 b for *to be*), etc.

Write what you hear: record only the sound of a word: high- *hi*; see you- c u; fee- *fi*; etc.

Drop medial vowels: build- *bld*; legal- *lgl*; bulletin- *bltn*; save- *sv*; budget- *bdgt*;

Write initial vowels: office- *ofs*; easy- *ez*; open- *opn*; etc.

Consonantic approach: leave out the vowels.
hrt (heart), oprtn (operation)

VERBS

work	<i>to work</i>
he doesn't work	<i>Xwork</i>
work ^g	<i>working</i>
<u>work</u> ^d	<i>worked</i>
<u>wwork</u>	<i>will work</i>

MODAL VERBS

should	<i>shd</i>
could	<i>cd</i>
would (work)	<u><i>wdwrk</i></u>
must	<i>>, !</i>

Use **arrows** to link elements (\leftrightarrow) and indicate

Direction ($\leftarrow \rightarrow$)

Increase or decrease ($\uparrow \downarrow$)

Use **mathematical symbols** ($\leq \geq = \neq + - \%$)

Use **medical abbreviations**. My advice: "Lrn 2 wrt'm fst b4 u \rightarrow bnnas!"

MEDICAL ABBREVIATIONS

SOME EXAMPLES OF MEDICAL SHORTHAND in English. Learn most common. Adopt as necessary.

PMH	Past medical history
QMH	Current medical history
HPI	History of present illness
DOB	Date of birth
Sx	Surgery
Hx	History
Fx	Fracture
Rx	Prescription
DOI	Date of injury
DOS	Date of surgery
HEENT	Head, ears, nose, and throat
ROM	Range of motion
NWB	Non-weight bearing
AT	As tolerated
SUP	Supervision
BPM	Beats per minute
ETOH+4	Drinks alcohol, alcoholic. -#: indicates drinks per day

ETOH- Denies use, not drink
IDDM Insulin-dependent diabetes mellitus
AAA apply to affected area
a.c. before meals
p.o. By mouth, orally

Symptoms

P Pain
N&T Numbness and tingling
PEARL Pupils equal and reactive to light

Immunizations

DTP diphtheria, tetanus, pertussis

Diseases

AIDS acquired immunodeficiency syndrome
STDs Sexually transmitted diseases
GERD Gastroesophageal reflux disease

And a loooong etc.

EXAMPLES OF SYMBOLS FROM *Note-taking Manual: A Study Guide for Interpreters and Everyone Who Takes Notes*, by Virginia Valencia

Cycle 1: Dictations on pages 36-41 Audio Tracks 18 - 23

Symbol:					
One of its Meanings:	Say/Speak	Need	Work	Think	Want
Number on Table:	#1	#4	#24	#17	#3

Zoom in (Ctrl+Plus)

Cycle 2: Dictations on pages 42-47 Audio Tracks 24 - 29

Symbol:					
One of its Meanings:	Call	See	Live/Home	Always	Never
Number on Table:	#9	#2	#42	#168	#169

Cycle 3: Dictations on pages 48-53 Audio Tracks 30 - 35

Symbol:					
One of its Meanings:	Wait	Sign	Enter	Leave	Angry/Scream
Number on Table:	#25	#10	#12	#11	#30

Cycle 4: Dictations on pages 54-59 Audio Tracks 36 - 41

Symbol:					
One of its Meanings:	Hear	Close	Open	Try	Walk
Number on Table:	#19	#34	#33	#20	#23

Cycle 5: Dictations on pages 60-65 Audio Tracks 42 - 47

Symbol:					
One of its Meanings:	Mail/File	Before	After	Again	Ask
Number on Table:	#5	#79	#80	#170	#15

Cycle 6: Dictations on pages 66-71 Audio Tracks 48 - 53

Symbol:					
One of its Meanings:	Drink	Angry/Scream	Think	Stop	Start
Number on Table:	#8	#30	#17	#32	#31

Cycle 7: Dictations on pages 72-77 Audio Tracks 54 - 59

Symbol:					
One of its Meanings:	Know	Give	Get	Long	Short
Number on Table:	#18	#26	#27	#173	#174

Cycle 8: Dictations on pages 78-84 Audio Tracks 60 - 66

Symbol:					
One of its Meanings:	Work	All	Need	Eat/Food	Afraid/Worried
Number on Table:	#24	#163	#4	#6	#96



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1.3 TABLE OF SYMBOLS FOR NOTE-TAKING

The numbers below correspond to those of the "Symbols for Dictations Table" (page 35). The text in bold font indicates the meaning of the symbols, the text not bolded explains the logic behind each symbol.

Verbs

	1. To say, state, declare, tell, speak. Quotation mark.		2. To see, observe, watch, notice, read. An eye.
	3. To want, desire, to feel. A heart.		4. To need, to require. The "N" for "need."
	5. To mail, send, process, present, file. An envelope.		6. To eat. Lips.
	7. To do, make. The symbol for change. Actions generate change.		8. To drink alcohol, be drunk, be an alcoholic. A glass (rectangle) and a straw (curved).
	9. To call, to contact. A part of a telephone spiral cord. Symbol for "messages" on some cell phones.		10. To sign, a signature. An "S" turned into a signature.
	11. To leave, exit. An arrow coming out of the circle.		12. To come, to enter. An arrow coming into a circle.
	13. To increase, a maximum. A vertical arrow intersected at its highest point. It helps differentiate it from a "T."		14. To reduce, a minimum. A vertical line intersected at the lowest point.
	15. To ask, question. Question mark.		16. To reply, respond. "R" for reply, two diagonal lines below as if to show the solution to a mathematical problem.
	17. To think, understand, believe, realize, find out, discover. An exclamation sign, as in cartoons when they have a new idea.		18. To know. "K" for knowledge.



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	19. To hear. The ear on the right, not attached to a head. Important not to draw it like a "C," since it can be mistaken for "Court."		20. To try. An interrupted arrow.
	21. To pay. The symbol for dollars.		22. To charge. To ask for (question mark) money (dollar symbol).
	23. To run, to escape, to walk. Two legs.		24. To work. "W" for work, as used in Newton's Physics.
	25. To wait. A clock. The L represents the two arms.		26. To give. A horizontal open hand from left to right.
	27. To receive, to get, to obtain. A horizontal open hand from right to left.		28. To have, there is, there are. The mathematical symbol for "exists."
	29. To arrest. Simple sketch of handcuffs.		30. To scream, yell, shout. Angry. Two slanted eyes and an open mouth.
	31. To start. A horizontal line intersected at the beginning (from left to right).		32. To finish. To stop. A horizontal line intersected at the end (from left to right).
	33. To open. A door, a circle overlapping at the doorknob area.		34. To close. A door, a line overlapping at the doorknob area.
	35. To owe. A hole on the ground, symbolizing a debt.		36. To review. An eye, the arrow indicates a circular, repetitive motion.
	37. To continue. An undulating arrow.		38. To mean. Mathematical symbol for "signify."
	39. To kill. Two X's represent dead eyes over a mouth (horizontal line).		40. To smoke. A cigarette (horizontal line) with smoke rising (curved line)
	41. To show. The profile of a reflector light (triangular shape), with light shining out (two diagonal lines).		42. To live. The roof of a house.



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People

	43. Woman, female. Taken from the Greek symbol for woman, simplified by omitting the horizontal line that crosses		44. Man, male. Taken from the Greek symbol for man, simplified by omitting the end of the arrow on top of the diagonal line.
	45. Baby. A wrapped baby in a horizontal position, the head represented by the circle, the big oval represents the bundled body.		46. Child. A head (circle) under some one's authority (a horizontal line).
	47. Marriage. Two rings intertwined.		48. Divorce. The symbol of marriage divided by a vertical line.
	49. Separation. The symbol of marriage divided by an "S," for "separation"		50. Husband/Boyfriend/Fiancé. The symbol of marriage, one of the circles representing the male.
	51. Wife/Girlfriend/Fiancée. The symbol of marriage, one of the circles representing the female.		52. Family. The symbol of marriage with an extra circle, representing a child.
	53. Pregnant. The profile of a pregnant lady. The vertical line is the back, the smaller circle at the top represents the head, the lower circle represents the pregnant belly.		54. Father. The symbol for a male, above a line (representing his authority over his child/ren).
	55. Mother. The symbol for a female, above a line (representing her authority over her child/ren).		56. Daughter. The symbol for a female, below a line (representing her position beneath her parents' authority).
	57. Son. The symbol for a male below a horizontal line (representing his position beneath his parents' authority).		58. Cousin.

Places

	59. Located, at.		60. Bank
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Note-taking examples (2-column page layout):

<https://m.youtube.com/watch?v=fBMhJDjkS2c>
<https://m.youtube.com/watch?v=Ni34Am19XFA>

THE RECALL LINE

“Don’t note the same word or symbol twice on the same page. It is almost always quicker to draw a line from it to where it appears the second time.”

WHEN TO NOTE IT

Lag time or *décalage* is also useful in note-taking.

“You are not obliged to note what you hear in the same order as you hear it, and if you stick to the structures and layout explained (margin-S-V-P) you will have some room to maneuver.

You can allow yourself to remember what is easy to remember, noting it later or not at all, and write down quickly what is more difficult to remember without getting your notes in a muddle.”
Andrew Gillies, *Note-taking for Consecutive Interpreting. A Short Course*

Multi-tasking

Writing sequences of numbers while capturing content and reformulating it (similar to shadowing), lists of things (that you had to learn by heart, like the planets, in order, or the oceans and seas, or the presidents of the US) is helpful (dissociation, multi-tracking).

AVOID...

- Taking notes when unnecessary (short statements, formula).
- Overdoing it: Note-taking is “only” a help, a “crutch.”

Develop and trust your memory.

IN CONCLUSION

A good note-T system should ...

- give the main ideas of a speech, including the main actors (subject-noun),
- links between those ideas/actors (action-verbs),
- tenses of verbs (time), and
- terms that must be transcoded (numbers, lists of things, proper names, addresses, etc.)
- be as economical as possible;
- be unequivocal and logical;
- use space wisely (with diagonal layout, separation of ideas, and a left-hand margin for “link words.”

“Experienced interpreters... concentrate entirely on the sense in what they are hearing and not on the way they are taking their notes. And as they speak, they focus on interpreting in a coherent way, using the notes as a memory aide, not as a text to be read out or translated. To achieve this same professional level of expertise, the students must put into practice the solid principles they have learned: **never allow their attention to wander from total concentration on sense, and note only what will trigger their memory and those few elements which must be transcoded.**” Danica Seleskovitch

AND...

DON'T FORGET YOUR NOTE PAD AND WRITING INSTRUMENTS
(TWO BETTER THAN ONE)

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