

ASPIA
13 February 2021

Joining the dots in Asperger syndrome

Dr Nola Norris
nola@nelt.com.au

1

Joining the Dots

- Why is it so difficult for him/her to 'join the dots'? (cause and effect)
- Why doesn't she/he learn from their own experience in the usual way?
- Why does she/he seem to attach so much significance to objects?
- Why does my AS partner appear to have no (or limited) sense of the passing of time?

2

Definitions

- *Neurodiversity*: diversity in cognitive profile and learner characteristics
- *Typically developing or neurotypical*

3

What is autism?

- It is a complex neurological condition
- It involves functional connectivity *between* brain regions, i.e. over- or under-connectivity (in comparison to neurotypicality), related to over- or under-activity.
- It is also characterised by differences *within* brain regions.
- It is a heterogeneous condition. Its presentation varies greatly from person to person.
- People with autism may have unusual strengths as well as impairments.

4

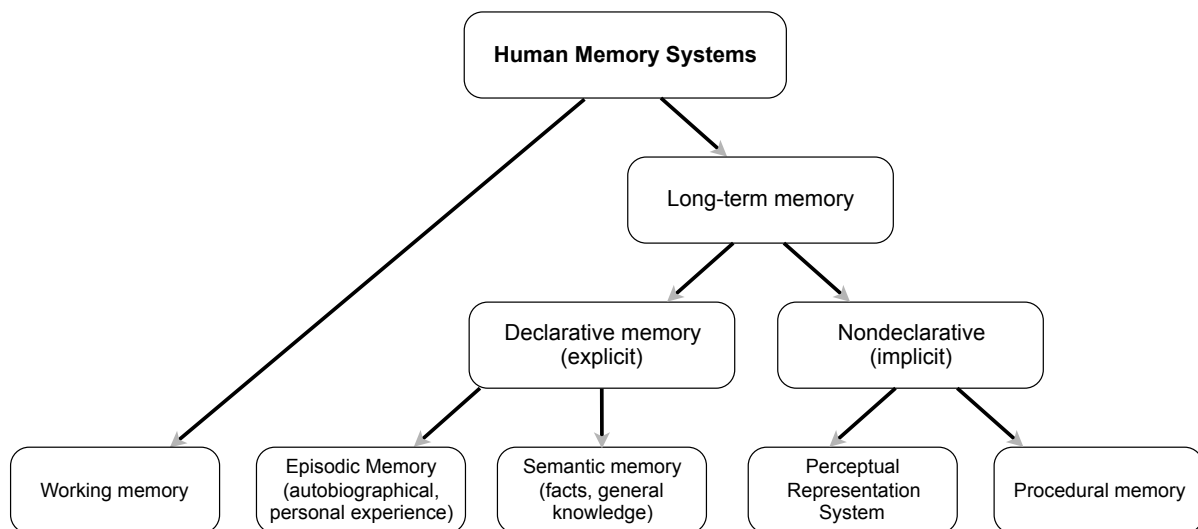
Childhood Amnesia

- Lack of childhood amnesia in AS
- Diminished neuronal pruning
- Different developmental trajectory

“It was also remarkable (and rather mysterious) that no fewer than nine autistic participants but no non autistic participants talked about experiences of babyhood.”

(Lee & Hobson, 1998, p. 1140)

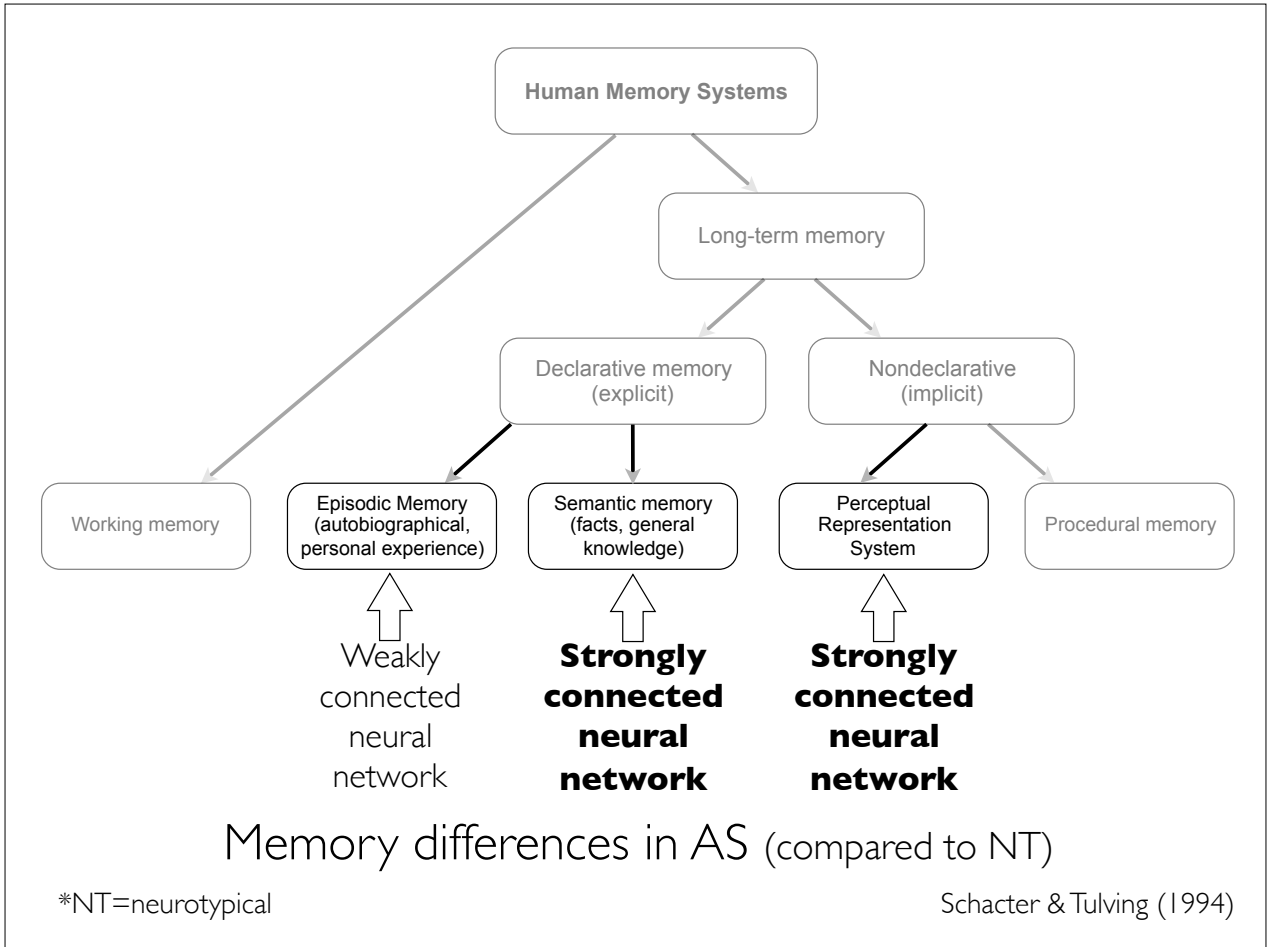
5



5 Major Systems of Human Memory and Learning

Schacter & Tulving (1994)

6



7

Episodic memory <i>Weakly connected</i>	Semantic memory <i>Strongly connected</i>	Perceptual memory <i>Strongly connected</i>
Personal experience	Facts, general knowledge	Raw sensory input
Abstract reasoning	Concrete, literal, <i>black-&-white thinking</i>	Sensory processing
Central coherence	Focus on detail at expense of bigger picture	Enhanced perception
Theory of mind	Contextless	Sensory sensitivities
Executive function	Rote memory	Being in the moment

Memory functions mapped to memory systems

Time

- Aspies may appear to have no sense of time passing
- Difficulty with changes over time
- Changing one's mind
- Growth, development, understanding
- The 'whiteboard effect' - thinking stuck in time

9

Joining the Dots

(Weakly connected episodic memory)

- Problem of attribution
- Cause and effect
- Before/after

10

Impaired Episodic Memory

Source memory (contextual info encoded at source of memories)

- ➡ Spatial (location, place)
- ➡ Temporal (subjective time)
- ➡ Affect (emotion)

11

Speech - Communication

- Difficulties with conversation skills (reciprocity, turn-taking)
- A tendency to be pedantic
- Have unusual prosody (speak in a monotone, “flat affect” - face is a mask)
- Make literal interpretations
- Trouble with pronouns

12

Speech - Communication

- May be hyper verbal
- Difficulty translating thoughts to speech
- Lack of conversational turn-taking
- The Aspie monologue — ‘God mode’ (associative thinking) Temple Grandin's example of the airport, Colin's example of the Vietnam war call-up

13

Case study: ‘Kahla’

- Artist
- Thinking out loud / shouting in court
- Memory
- Beliefs
- Artworks
- Colour

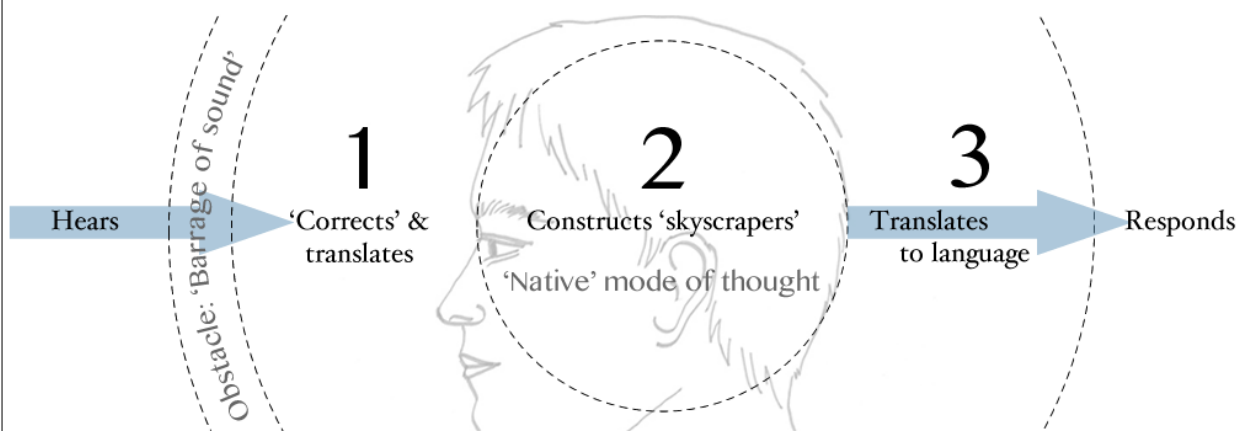
14

Hyperv verbal ↔ Difficulty translating thoughts to speech

- Riley
- Veterinary research scientist in his 60s
- High achievements in his field but struggles to articulate speech

15

Riley's 3 step thinking process—'Translation'



"It's absolutely exhausting to say nothing" - Riley

16

Native modes of thought

Years ago I read a book ... that dealt with the question, “Can one think without using language to do it?” The book consisted of a series of case studies intended to demonstrate that “language-less” thought was possible. I was especially struck by the case of a British mathematician, who claimed that he thought not only without language but without the notational systems common to mathematicians. Indeed, he argued, he developed his proofs at some inner level of mind that eschewed both words and symbols. But when the proof had to be written down so that it could be communicated to others, it “lost in the translation”; that is, it communicated only the surface of the thought and failed to communicate the deeper mental experience...and perhaps something of its meaning. (Lincoln & Guba, 2013, p. 30)

17

Riley and ‘state-dependent memory’

- Personal memories with emotional content are hard to recover
- The physical presence of the context is required to recover the memory
- Contrast to episodic memories recovered through “mental time travel”

18

Questions

- Why is it so difficult for him/her to 'join the dots'? (cause and effect)
- Why doesn't she/he learn from their own experience in the usual way?
- Why does she/he seem to attach so much significance to objects?
- Why does my AS partner appear to have no (or limited) sense of the passing of time?

19

Questions

- Why is it so difficult for him/her to 'join the dots'? (cause and effect)
 - Functions of temporality and episodic memory allow accurate attribution of cause and effect. Relying on semantic memory alone allows literal judgements only. (However, compensatory strategies play an important role here for HFA.)

20

Questions

- Why doesn't she/he learn from their own experience in the usual way?
 - Episodic memory is memory for personal experience. Learning from personal experience will be limited because the neural network for episodic memory is poorly connected.

21

Questions

- Why does she/he seem to attach so much significance to objects?
 - In the absence of well-developed episodic memory neural pathways, objects fulfil an important role of external representation of aspects of identity. The person probably cannot articulate what this meaning is.

22

Questions

- Why does my AS partner appear to have no (or limited) sense of the passing of time?
 - Temporality is an operation of episodic memory. The neural network for episodic memory is poorly connected.

23

NELT
Norris Education Learning & Teaching

Home About Workshops Resources Workshop & Presentation Handouts Blog Contact

A conceptual framework for teachers, parents, and life partners of gifted learners with ASD

Learn more

www.nelt.com.au
nola@nelt.com.au

24