



Driving The Future

The Relation Between Driving and Prospective Memory in Adults With an Autism Spectrum Disorder

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Driving

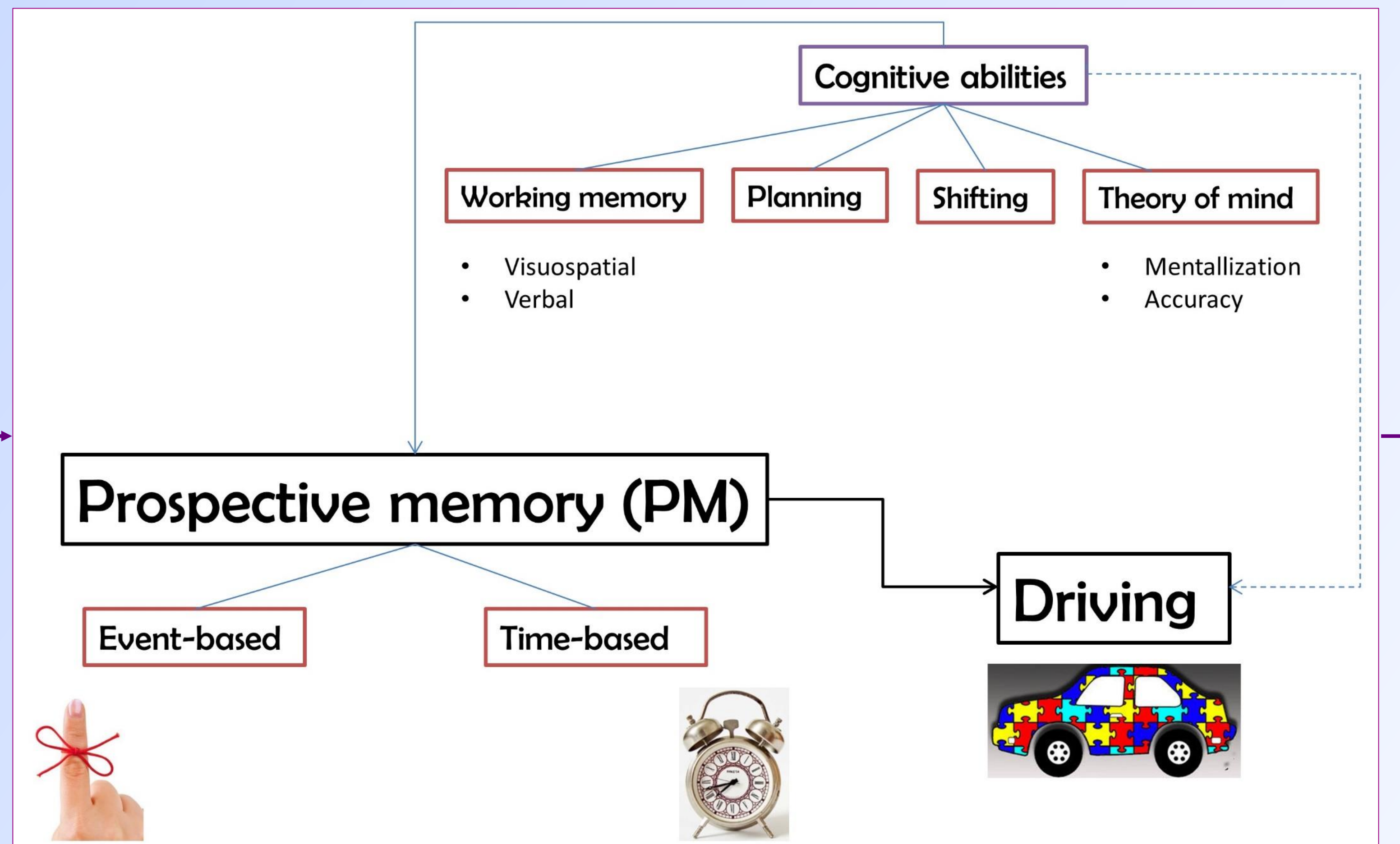
- Important to gain autonomy
- Complex goal-directed task
- Requires multitasking
- Involves situations of increased cognitive load
- Beside vehicle handling, navigation through different environments while remembering appointments and obeying a schedule

Autism spectrum disorder (ASS)

- Difficulties with coordinating and sequencing activities, and with planning ahead
- Indications of prospective memory deficits

Prospective memory

- Ability to remember to carry out intended actions in the future while being engaged in other ongoing activities
- Two subtypes of PM are event-based PM (EBPM) and time-based PM (TBPM)



Participants and procedure

- 19 ASS (official diagnosis) & 20 control:
 - → data collection ongoing
 - No difference gender or age
 - Diagnosis confirmed by SRS and AQ-10
 - Age: 18-62 years old
 - At least 20 hours of driving experience
- All tasks counterbalanced (2 hours)
- Reward of 15 euro

Virtual reality (VR) PM city task

- 4 EBPM (2 strong 2 weak link intention and act)
Eg. Stop at gas station for fuel
- 2 TBPM
Eg. Indicate when 5 min. have passed
- Standard driving measures (e.g., lights, hazard)



Computer tasks assessing cognition

- Working memory: visuospatial and reversed digit span
- Planning: Tower of London
- Shifting: Trail making test – B
- Theory of mind: Triangle task

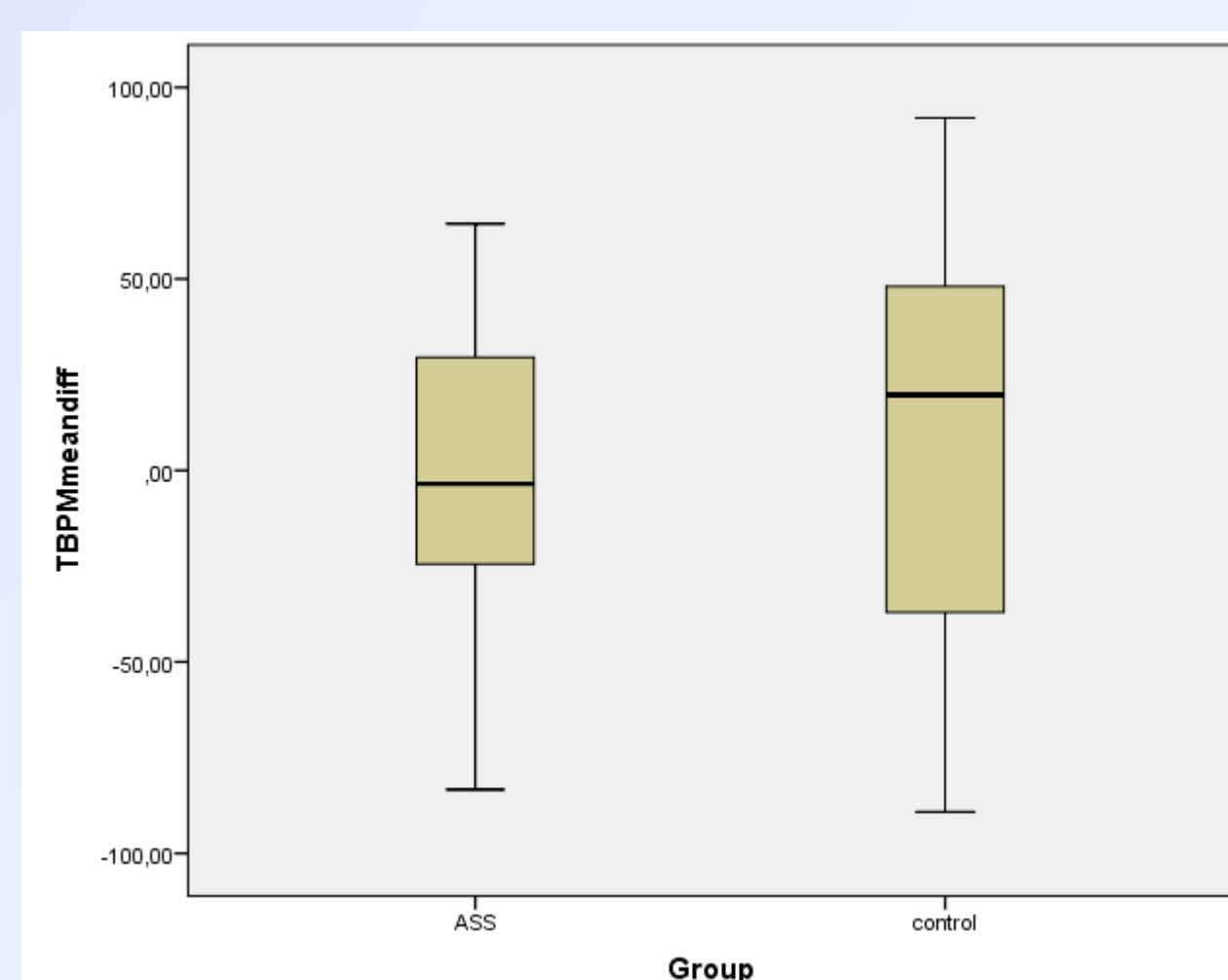


PM performance

- EBPM
 - No differences
- TBPM
 - Group differences
 - ASS responds earlier (but also closer to target time)
 - Interaction group planning
 - ASS: not dependent on planning ability
 - Control: dependent on planning ability

Driving performance

- Yellow light
 - Young age → light running
- Crashes
 - ASS crashed more
 - Interaction group and shifting
 - ASS: not dependent on shifting ability
 - Control: dependent on shifting ability



Presented results are preliminary but indicate subtle group differences in both PM and driving performance

Next steps

- Additional data collection
- Analyses of additional PM simulated drive
 - Contextualized PM tasks
 - Eg. EBPM: Remember to take an exit after a distracting event (exit = cue)
 - Eg. TBPM: Ask for route information after 3 minutes