Driving: complex & goal-oriented

- Different tasks
  - Parallel
  - Switching
  - E.g., shifting, steering, changing lanes, ...

- With risk of distraction
  - Passenger
  - Phone
  - ...

Driving: complex & goal-oriented

- Unknown routes and complex driving environments

- Sudden changes in the environment
  - E.g., traffic density, weather conditions

Driving → dependent on executive functioning (EF)

Example: study of young novice drivers

Prospective memory and driving

Prospective memory (PM)

Driving

Cognitive abilities
- Shifting
- Planning
- Working memory
- Theory of mind
- Mentalization
- Accuracy

Event-based
- Time-based
Prospective memory in ASD

Conflicting results
Agreement of time-based PM (TBPM) difficulties
Disagreement of event-based PM (EBPM) difficulties
Could be related to EF difficulties in ASD
Important to use real-life/naturalistic studies → driving!

Pilot study objectives

1. Translate typical PM task to simulated driving in ASD
   a. Age differences?
   b. Underlying EF functions?

2. Do outcome measures of the PM task predict more naturalistic PM situations?

Participants

Young adults and adults (18-62)
Matched groups
ASD
   • N= 19
     • 11 males, 8 females
     • Mean age= 33
Control
   • N= 20
     • 10 males, 10 females
     • Mean age= 33

Driving scenarios

Drive 1: Typical PM task
   • 4 EBPM (e.g., change a tier at the ALDI)
   • 2 TBPM (e.g., indicate when 5min. passed)
   • Measures: EBPM distance, TBPM time

Drive 2: Naturalistic PM situations
   • 2 EBPM
     • Exit
     • Red light in school zone
     • Measure dependent on situation
   • 2 TBPM
     • Missed call
     • Route information
     • Measure: TBPM time

Executive functioning tasks

Test battery of EF tasks
Only include significant correlates (power)
Preliminary analyses and results

Drive 1: typical PM task
All intentions remembered correctly?
- EBPM: ASD & control ✓
- TBPM: ASD 79% & control 88%

Difference in timing of stated intention? X

Drive 2: Naturalistic PM situations
Exit highway

Drive 1: typical PM task
Planning and working memory?

Group*TOL

Group*WM

Exit highway
Prospective Memory Abilities while Driving in Adults with an Autism Spectrum Disorder  
Funded by the Marguerite-Marie Delacroix support fund foundation  

Questions?  
veerle.ross@uhasselt.be