

Title masterproject:	Flexible minds
Theoretical context:	<p>Because of their plastic brains, it is often assumed that children learn more quickly than adults. Furthermore, there is intuitive appeal to the idea that children are flexible and creative, and that they adapt quickly to new situations. However, to date there is not much scientific evidence for this idea.</p> <p>A few recent studies have suggested that children can be more flexible than adults, for example when learning about causal relationships (e.g., Lucas et al., 2014, Cognition). However, this stands in sharp contrast with a large body of research showing that children perform worse than adults on task switching, set shifting, and updating of information in working memory, which all relate to flexibility (e.g., Diamond, 2013, Ann Rev Psychol).</p> <p>Here, we will investigate whether the apparent contradictory views on flexibility can be explained by the extent to which a task places demands on (a) background knowledge versus (b) executive functions. This will be examined in two different lines of research, related to science learning (hypothesis testing and learning about causal relationships) and reading comprehension (updating mental representations and misconceptions).</p>
Research Question(s):	<p>To what extent can 'flexibility' during science learning be explained by the relative demands on background knowledge versus executive functions?</p> <p>To what extent can 'flexibility' in the mental representation of a text be explained by the relative demands on background knowledge versus executive functions?</p>
Study population:	Children and adults (Dutch speaking!)
Type of measures:	Behavioral measures: reaction times, accuracy, reading speed
Activities for students:	<p>Science learning experiment (thesis and/or internship):</p> <ul style="list-style-type: none"> • Set up of experiment, based on Lucas et al. (2014) (only when thesis and internship are combined) • Pilot experiment (only when thesis and internship are combined) • Testing children and adults • Data analysis & thesis <p>Reading comprehension experiment (thesis <u>and</u> internship):</p> <ul style="list-style-type: none"> • Writing texts • Pilot experiment • (Testing children and adults) • Data analysis & thesis
Supervisor:	Dietsje Jolles (in collaboration with Maartje Raijmakers/ Paul van den Broek)
Number of students:	<p>One student for the science learning experiment One student for the reading comprehension experiment</p> <p><i>Note: students must be proficient in Dutch!</i></p>
# ECTS	20 (thesis) <i>or</i> 30 (20 thesis + 10 internship)
Schedule:	<p>Start science learning project: October. Start reading comprehension project: discuss with supervisor.</p>