**1) Have any data been collected for this study already?**  
No, no data have been collected for this study yet.  
  
**2) What's the main question being asked or hypothesis being tested in this study?**  
Previously research (Justice et al., 2017) found that performance on a complex secondary visual working memory task could be used to identify true from fabricated autobiographical memories during a primary memory generation task.

The aims of this study are:

1. To replicate these previous findings
2. To identify which secondary tasks (e.g. visual spatial, auditory, motor) are most effective at identifying true from fabricated autobiographical memories during a primary memory generation task.

To do this we will run a series of experiments, varying the cognitive load used:  
Experiment 1: visual memory task using numerical stimuli (8 digit sequence)  
Experiment 2: visuo-spatial task using non-numerical stimuli (grid pattern recall)  
Experiment 3: audio memory task (spoken 8 digit sequence)  
Experiment 4: non-memory, motor task (mouse tracking a path on computer)

We hypothesise that

1. performance in the secondary tasks will be poorer when participants have to also generate a fabricated memory than when they have to generate a true memory;
2. participants will take longer to complete the secondary task when they are generating a fabricated memory rather than when they are generating a true memory;
3. participants will take longer to generate fabricated memories than true memories, regardless of presence/absence of secondary task.
4. Participants will take long to generate memories when the secondary task is present, regardless of memory type (true of fabricated)
5. Fabricated memories with a secondary task will take the longest to generate, whilst true memories without a secondary task will be the quickest to generate.

**3) Describe the key dependent variable(s) specifying how they will be measured.**  
Performance on the secondary task will be the main dependent variable.  
Experiment 1: the DV will be number of digits recalled in serial order and number of digits recalled in any order.   
Experiment 2: the DV will be number of correct individual grid squares recalled.  
Experiment 3: the DV will be number of digits recalled in serial order and number of digits recalled in any order.  
Experiment 4: the DV will be absolute performance on the task measured by Euclidean distance from target.  
Response time to retrieve the memory and to complete the secondary task will be recorded for all experiments.  
  
  
**4) How many and which conditions will participants be assigned to?**  
All experiments will employ a within subjects design. Participants will be required to generate both true and fabricated memories whilst performing and not performing a secondary task, creating 4 conditions: real memory without secondary task, fabricated memory without secondary task, real memory with secondary task & fabricated memory with secondary task  
  
**5) Specify exactly which analyses you will conduct to examine the main question/hypothesis.**  
Mixed effect linear models will be run with performance as the outcome measure and memory type (true or fabricated) and secondary task (present, not present) as predictors for all four experiments. We will examine the interaction and main effects of these variables.   
We will include participant and cue word as a random slopes.   
  
A second model with response time to complete the secondary task will also be run for all four experiments. This will also be a mixed effect linear models. Response time (which will be log transformed to reduce skewness and normalise the data) will be the outcome measure and memory type (true or fabricated) and secondary task (present, not present) as predictors. We will examine the interaction and main effects of these variables. We will include participant and cue word as a random slopes.   
  
Finally we will investigate response time to generate a memory for all four experiments. As above, response time will be log transformed to reduce skewness and normalise the data will be the outcome measure and memory type (true or fabricated) and secondary task (present, not present) as predictors . We will examine the interaction and main effects of these variables. We will include participant and cue word as a random slopes.  
  
**6) Describe exactly how outliers will be defined and handled, and your precise rule(s) for excluding observations.**  
Memories will be excluded from analysis if they are not specific memories from a single event lasting minutes/hours. This is because we are investigating specific autobiographical memories, not generic memory-based information.  
  
**7) How many observations will be collected or what will determine sample size?  
No need to justify decision, but be precise about exactly how the number will be determined.**  
We will collect 30 participants per experiment.  
  
**8) Anything else you would like to pre-register?   
(e.g., secondary analyses, variables collected for exploratory purposes, unusual analyses planned?)**