

# PRE-REGISTRATION: WHERE DO I START?

Dr Xenia Schmalz  
Post-doctoral researcher, ambassador at COS  
25/06/2019



# REGISTERED REPORTS VERSUS PRE-REGISTRATION

	RR	Pre-reg
• Defence against $p$ -hacking	✓	✓
• Defence against publication bias	✓	?
• Defence against HARKing	✓	✓
• Guarantee of publication	✓	X
• Quality check before data collection	✓	?
• Badge	✓	✓
• Flexible timing	X	✓



# WHAT IS A PRE-REGISTRATION?

- Time-stamped, non-modifiable document outlining the hypotheses, methods, and analysis plan
- Flexible format: full report, bullet points...
- **Not** peer reviewed
- Platforms: Open Science Framework, aspredicted.org, Registered Reports in Psychology (in development) ...
- Must be uploaded **before** data collection has started
- Insert link to the pre-registration in final manuscript

# WHERE DO I START?

- In theory: Very easy



# IN PRACTICE

Disclaimer: I have not published a pre-registered study (yet)!








# IN PRACTICE

## My Projects Browse and organize all your projects

Create Project

All my registrations >

Filter displayed projects ✕

Collections 	< 1/2 >	Name ^ ▾	Contributors	Modified ^ ▾	<
All my projects		 How does sentence context affect word frequency effects? A within-task i...	Schmalz	3 years ago	
All my registrations		 Artificial Grammar Learning (AGL)	Schmalz	3 years ago	
All my preprints		 Cross-modal statistical learning: Does bigram exposure facilitate print-to...	Schmalz	4 years ago	
Sublexical processing (6)	⋮	 Crowding, letter-position, and letter-identity coding: How are they related?	Schmalz	4 years ago	
Letter bigrams (2)	⋮	 Does bigram legality constrain the transposed-letter effect?	Schmalz	4 years ago	
Contributors 		No contributors to display in this collection. Project administrators can add contributors.			
Tags		No tags to display in this collection. Project administrators and write contributors can add tags.			

Disclaimer: I have not published a pre-registered study (yet)!

# IN PRACTICE

OSFHOM E

My Quick Files My Projects Search Support Donate Xenia Schmalz

My Projects Browse and organize all your projects In progress [Create Project](#)

All my registrations

Filter displayed projects

Name	Contributors	Modified
How does sentence context affect word frequency effects? A within-task i...	Schmalz	3 years ago
Artificial Grammar Learning (AGL)	Schmalz	3 years ago
Cross-modal statistical learning: Does bigram exposure facilitate print-to...	Schmalz	4 years ago
Crowding, letter-position, and letter-identity coding: How are they related?	Schmalz	4 years ago
Does bigram legality constrain the transposed-letter effect?	Schmalz	4 years ago

Uninterpretable null results

Published as preprint only (rejected by journal)

Disclaimer: I have not published a pre-registered study (yet)!



# ROOKIE MISTAKE 1: FLAWED DESIGN

- Pilot testing
- Build as closely as possible on prior work
- Do-it-yourself peer review: Ask some colleagues to have a read through the report
- For the brave: Upload the report before time-stamping it, advertise through social media





# ROOKIE MISTAKE 2: UNINTERPRETABLE NULL HYPOTHESIS

- Experiment idea “Wouldn’t it be cool if...?”
  - With such experiments: if yes → “Wow!”, if no → “Duh!”
- Instead:
  - Theoretical considerations: What would a null result tell us?
  - Maximise the strength of the manipulation
  - Include manipulation checks
  - Adequate sample size



# ROOKIE MISTAKE 3: PROMISING THINGS YOU CAN'T KEEP

- Pilot materials
- Sample size: What is realistic?
  - Power analysis: often gives practically unrealistic required sample sizes, if we're honest
  - Sequential testing: frequentist ([Lakens 2014](#)) or Bayesian ([Schönbrodt & Wagenmakers, 2018](#))
  - Practical considerations: valid argument, if  $N >$  in most previous studies
- Fancy data processing or analysis techniques
  - Practice on pilot data or simulated data

# SO, WHERE DO I START?

- Start with small steps
- Write Preregistration reports for all experiments as an exercise
- Does a formal preregistration make sense for this study?
  - E.g., new paradigm, exploratory studies
- Will the design allow us to draw conclusions regardless of what happens?
- Collect pilot data
- Get as much feedback as possible
- The more detail, the better!
- Make changes as necessary, but clearly describe & justify in manuscript