

My experience with Registered Reports

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Michael J Mahoney
Scientist as Subject: The Psychological Imperative
Ballinger Publishing Company, Cambridge MA
1976



- "... manuscripts should be evaluated solely on the basis of their relevance and their methodology. Given that they ask an important question in an experimentally meaningful way, they should be published - regardless of their results.
- In the peer review system, papers sent to referees would contain only an introduction and a procedure section (perhaps supplemented with a brief description of how the data would be presented or analysed).
- After the reviewers had rendered their opinions, the results would be appended.
- An even better option would be to have contracted publication. In this system, the researcher submits his idea and experimental procedures to the editor prior to their execution. If the editor approves, the researcher is guaranteed subsequent publication of the work. "

38 years later



Science
Head quarters

Psychology's 'registration revolution'

Moves to uphold transparency are not only making psychology more scientific - they are harnessing our knowledge of the mind to strengthen science

Chris Chambers

Tuesday 20 May 2014 07:15 BST



< Shares Comments

464

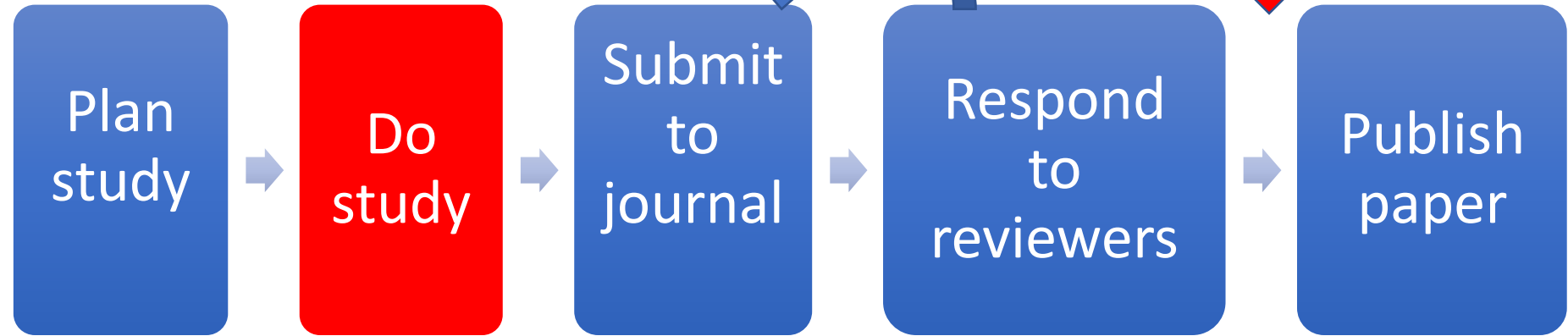
9



Save for later

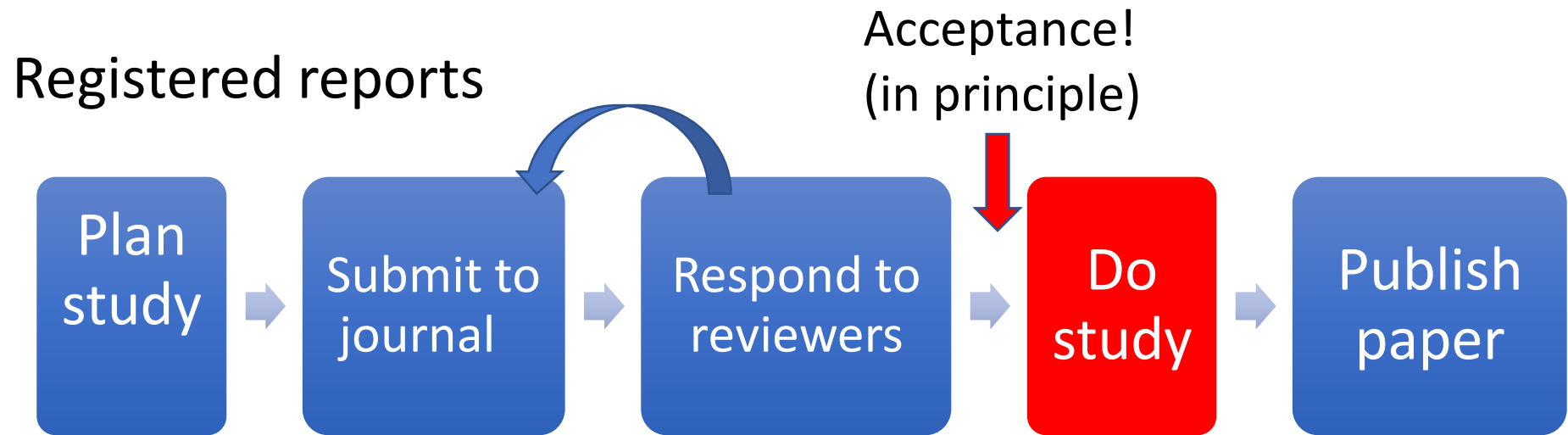
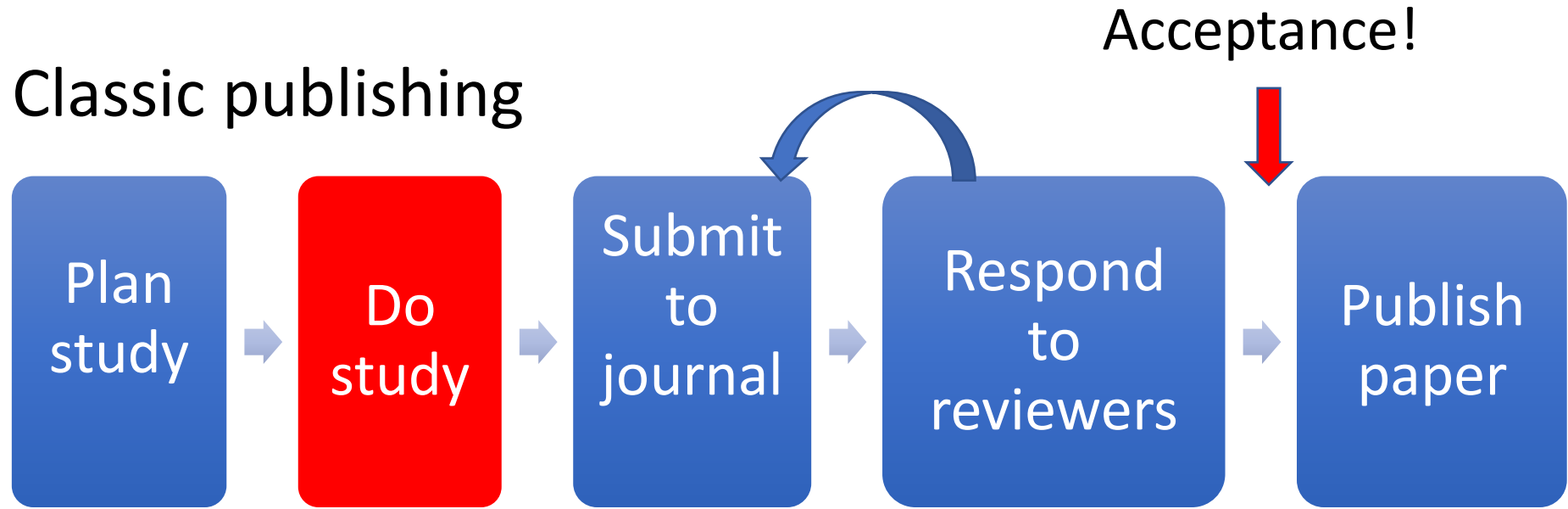


Classic publishing



Acceptance!

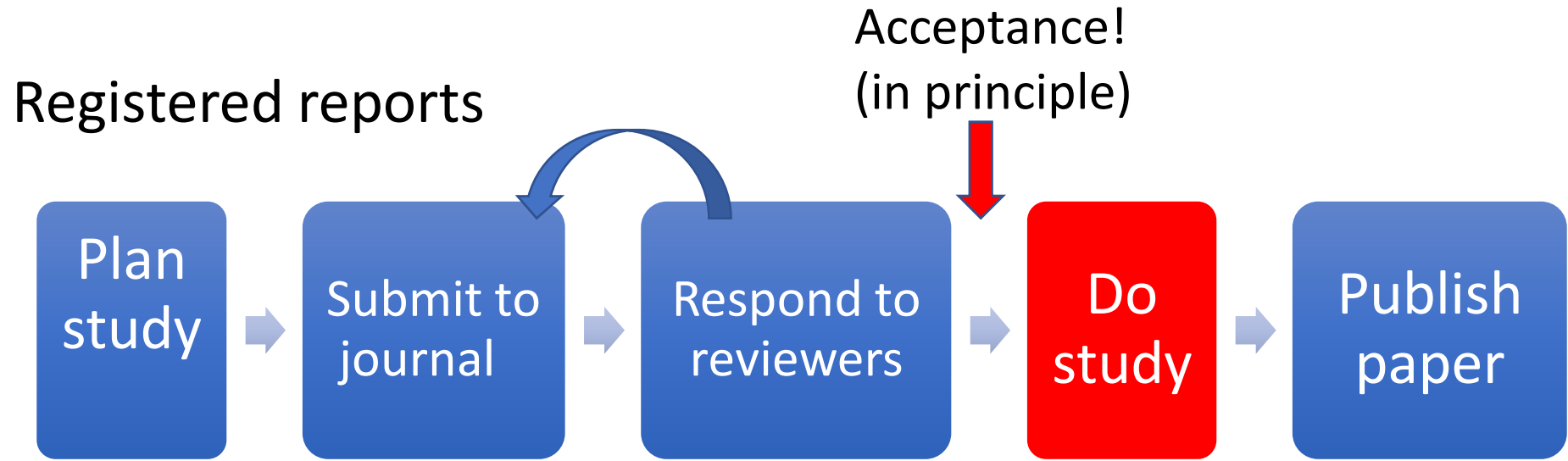




Registered report is **not** the same as Pre-registration



- Similar to regular publication route
- No guarantee of publication
- But reviewers generally positive about preregistered papers
- And benefits of having well-worked out plan – less stress when it comes to making sense of data



What are the benefits?

Four key factors leading to poor reproducibility

Low power

Publication bias

P-hacking

HARKing



Bishop, D. V. M. (2019). Rein in the four horsemen of irreproducibility. *Nature*, 568(7753), 435–435. <https://doi.org/10.1038/d41586-019-01307-2>

Registered reports – solve issues of:

- **Publication bias:** publication decision made on the basis of quality of introduction/methods, before results are known
- **P-hacking:** analysis plan specified up-front
- **HARKing:** hypotheses specified up-front
- **Low power:** studies required to have high power

Unanticipated findings can be reported but clearly demarcated as ‘exploratory’

Unexpected benefit #1

Reviewer feedback at a point when it is useful

CORTEX 82 (2016) 290–310

Available online at www.sciencedirect.com

ScienceDirect

Journal homepage: www.elsevier.com/locate/cortex

Registered report

Mu suppression – A good measure of the human mirror neuron system?

Hannah M. Hobson* and Dorothy V.M. Bishop



Reviewers suggested:

- Control for motor movement

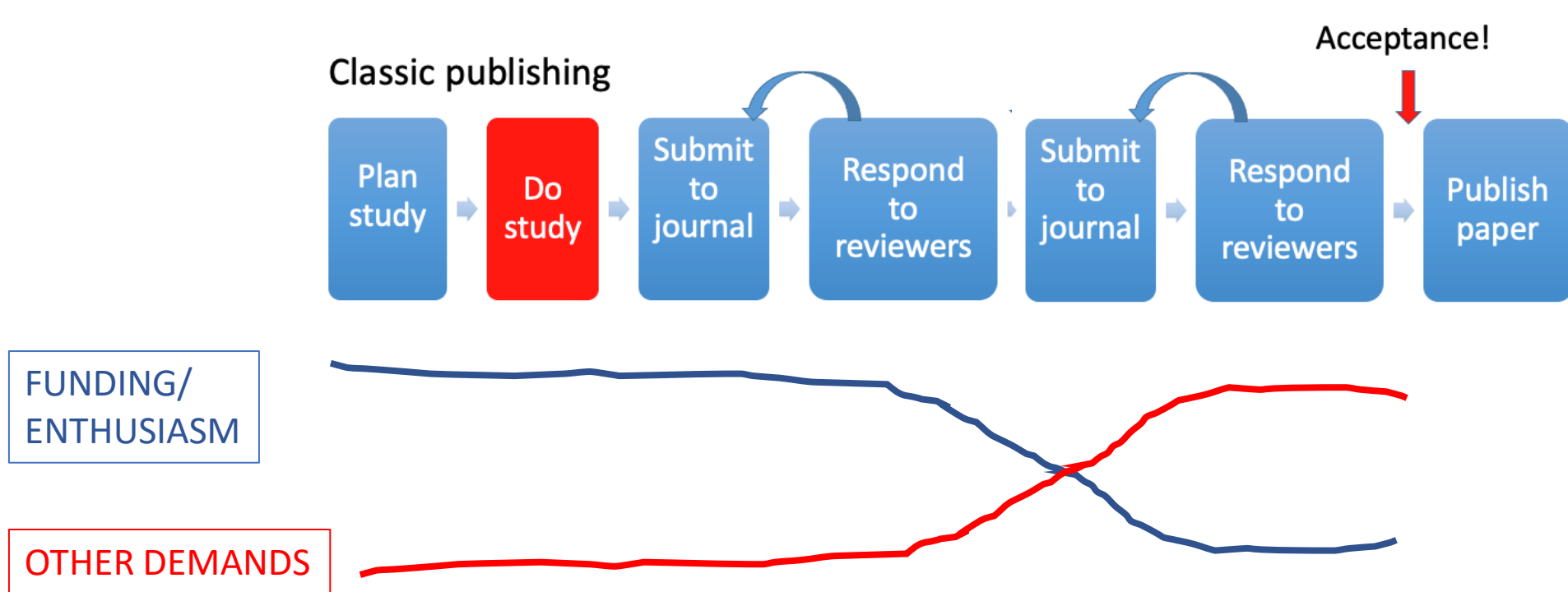
- Control for attention

- Positive control (check we get mu when actual movement)

- Alternative method of analysis

Unexpected benefit #2

Taking control of the publication time-line



Unexpected benefit #3

No shifting of goalposts

- That thing when you address all the reviewer comments, but they then come back with something new.....

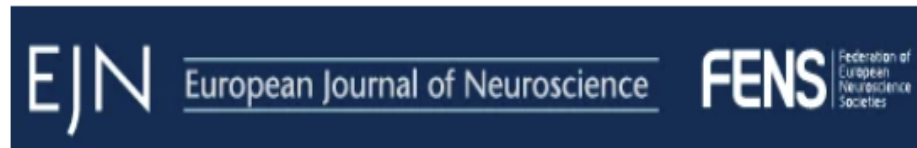


Unexpected benefit #4

- Piloting and simulation reveal numerous points that can be addressed before you start the study
- In our Registered Reports, we use simulated data for power calculations – often leading us to dramatically reconsider what we plan!

Reviewer feedback useful even if Registered Report abandoned

Stage 1 RR rejected by Cortex, 2018



RESEARCH REPORT |  Open Access |  

Investigation into inconsistent lateralisation of language functions as a potential risk factor for language impairment

Abigail R. Bradshaw , Zoe V. J. Woodhead, Paul A. Thompson, Dorothy V. M. Bishop,

First published: 18 November 2019 | <https://doi.org/10.1111/ejn.14623> | Citations: 2



To sum up

- Registered Reports are good for science!
 - Get a far more credible picture of state of evidence once you remove opportunities for publication bias and p-hacking, and omit uninformative underpowered studies
- Also good for scientists
 - Better able to treat peer review as a positive source of advice
 - More piloting/simulation improves study design
 - Control of the publication timeline

My experience with Registered Reports



2016 Registered report
Mu suppression – A good measure of the human mirror neuron system?

Hannah M. Hobson¹ and Dorothy V.M. Bishop¹
Department of Experimental Psychology, University of Oxford, Oxford, UK
Registered report

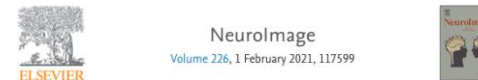
2018 **Online incidental statistical learning of audiovisual word sequences in adults: a registered report**

Sengottuvel Kuppuraj[✉], Mihaela Duta,
Paul Thompson and Dorothy Bishop
Published: 21 February 2018
<https://doi.org/10.1098/rsos.171678>

2018 Registered report
The influence of evaluative right/wrong feedback on phonological and semantic processes in word learning

Saloni Krishnan[✉], Elise Sellars, Helena Wood,
Dorothy V. M. Bishop and Kate E. Watkins
Published: 05 September 2018
<https://doi.org/10.1098/rsos.171496>

Wellcome Open Research
RESEARCH ARTICLE
Stage 2 Registered Report: There is no appreciable relationship between strength of hand preference and language ability in 6- to 7-year-old children [version 1; review: 2 approved]
Verena E. Pritchard¹, Stephanie A. Malone¹, Kelly Burgoyne^{1,2}, Michelle Heron-Delaney¹, Dorothy V.M. Bishop^{1,3}, Charles Hulme^{1,4}



Registered Report
Functional organisation for verb generation in children with developmental language disorder

Saloni Krishnan^{1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,91,92,93,94,95,96,97,98,99,100}, Salomi S. Asaridou¹, Gabriel J. Cler², Harriet J. Smith^{3,4}, Hannah E. Willis^{5,6}, Máiréad P. Healy^{7,8}, Paul A. Thompson⁹, Dorothy V.M. Bishop¹⁰, Kate E. Watkins¹¹
Wellcome Open Research
Registered: 28

RESEARCH ARTICLE
Stage 2 Registered Report: Variation in neurodevelopmental outcomes in children with sex chromosome trisomies: testing the double hit hypothesis [version 4; peer review: 2 approved]
Dianne F. Newbury¹, Nuala H. Simpson², Paul A. Thompson^{1,2}, Dorothy V. M. Bishop^{1,2}

Rejected, 2018



RESEARCH REPORT | Open Access | CC BY
Investigation into inconsistent lateralisation of language functions as a potential risk factor for language impairment

Abigail R. Bradshaw[✉], Zoe V. J. Woodhead, Paul A. Thompson, Dorothy V. M. Bishop,
First published: 18 November 2019 | <https://doi.org/10.1111/ejn.14623> | Citations: 2

2019

2021

2018-2021