

Tom E. Hardwicke

School of Psychological Sciences
University of Melbourne

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ACADEMIC APPOINTMENTS

Research Fellow. School of Psychological Sciences, University of Melbourne, Australia. Advisor: Prof. Simine Vazire.	2022 – present
Marie Skłodowska-Curie Research Fellow. Department of Psychology, University of Amsterdam, The Netherlands. Advisor: Prof. Eric-Jan Wagenmakers.	2020 – 2022 [2 years]
Visiting Fellow. Berlin Institute of Health QUEST Center, Charité – Universitätsmedizin Berlin, Germany.	2020 – 2021 [1 year]
Postdoctoral Scholar. Meta-Research Innovation Center Berlin (METRIC-B), Berlin Institute of Health QUEST Center, Charité – Universitätsmedizin Berlin, Germany. Advisor: Prof. John Ioannidis.	2019 – 2020 [1 year]
Postdoctoral Fellow. Meta-Research Innovation Center at Stanford (METRICS), Stanford University, USA. Advisors: Prof. John Ioannidis, Prof. Steven Goodman, & Prof. Michael Frank.	2017 – 2018 [2 years]

EDUCATION

PhD Experimental Psychology. University College London, UK. Advisor: Prof. David Shanks.	2012 – 2016 [4 years]
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MRes Brain Imaging and Cognitive Neuroscience.	2011 – 2012
University of Birmingham, UK.	[1 year]
BSc Psychology (First Class Honours).	2007 – 2011
Cardiff University, UK.	[4 years]

PUBLICATIONS

- Frank, M. C., Braginsky, M., Cachia, J., Coles, N., Hardwicke, T. E., Hawkins, R., Mathur, M., & Williams, R. (preprint). Experimentology: An open science approach to experimental psychology methods. MIT Press. Open access: <https://experimentology.io>
- Fernández, L. M., Hardwicke, T. E., & Vadillo, M. A. (preprint). Retracted papers clinging on to life: An observational study of post-retraction citations in psychology. *PsyArXiv*. <https://doi.org/hcht>
- Thibault, R. T., Kovacs, M., Hardwicke, T. E., Sarafoglou, A., Ioannidis, J. P. A., & Munafo, M. R. (in press). Reducing bias in secondary data analysis via an Explore and Confirm Analysis Workflow (ECAW): A proposal and survey of observational researchers. *Royal Society Open Science*. <https://doi.org/j8kb>
- Hardwicke, T. E., & Wagenmakers, E.-J. (2023). Reducing bias, increasing transparency, and calibrating confidence with preregistration. *Nature Human Behaviour*, 7, 15-26. <https://rdcu.be/c49sw>
- Hardwicke, T. E., Salholz-Hillel, M., Malički, M., Szűcs, D., Bendixen, T., Ioannidis, J. P. A. (2023). Statistical guidance to authors at top-ranked journals across scientific disciplines. *The American Statistician*, 77(3), 239-247. <https://doi.org/jksd>
- Hardwicke, T. E., Thibault, R. T., Kosie, J. E., Tzavella, L., Bendixen, T., Handcock, S. A. Köneke, V. E., Ioannidis, J. P. A. (2022). Post-publication critique at top-ranked journals across scientific disciplines: A cross-sectional assessment of policies and practice. *Royal Society Open Science*, 9, 220139. <https://doi.org/h828>
- TARG Meta-Research Group & Collaborators [Thibault, R. T., Hardwicke, T. E., Clark, R. W. A., Pennington, C. R., Nilsonne, G., O'Mahony, A., Drax, K., Thompson, J., Munafo, M. R.] (2022). Discrepancy review: A feasibility study of a novel peer review intervention to reduce undisclosed discrepancies between registrations and publications. *Royal Society Open Science*, 9, 220142. <https://doi.org/h78p>
- Nosek, B. A., Hardwicke, T. E., Moshontz, H., Allard, A., Corker, K. S., Dreber, A., Fidler, F., Hilgard, J., Kline Struhl, M., Nuijten, M., Rohrer, J., Romero, F., Scheel,

- A., Scherer, L., Schönbrodt, F., & Vazire, S. (2022). Replicability, robustness, and reproducibility in psychological science. *Annual Review of Psychology*, 73, 719-748. <https://doi.org/g3qf>
- Hardwicke, T. E., Thibault, R. T., Kosie, J. E., Wallach, J. D., Kidwell, M. C., & Ioannidis, J. P. A. (2022). Estimating the prevalence of transparency and reproducibility-related research practices in psychology (2014-2017). *Perspectives on Psychological Science*, 17(1), 239-251. <https://doi.org/fzwj>
- Hardwicke, T. E., Szűcs, D., Thibault, R. T., Crüwell, S., van den Akker, O. R., Nuijten, M. B., & Ioannidis, J. P. A. (2021). Citation patterns following a strongly contradictory replication result: Four case studies from psychology. *Advances in Methods and Practices in Psychological Science*, 4(3), 1-14. <https://doi.org/gwt8>
- Hardwicke, T. E., Bohn, M., MacDonald, K., Hembacher, E., Nuijten, M. B., Peloquin, B. N., deMayo, B., Long, B., Yoon, E. J., & Frank, M. C. (2021). Analytic reproducibility in articles receiving open data badges at Psychological Science: An observational study. *Royal Society Open Science*, 8, 201494. <https://doi.org/fp2m>
- Hardwicke, T. E., & Goodman, S. N. (2020). How often do leading biomedical journals use statistical experts to evaluate statistical methods? The results of a survey. *PLOS ONE*, 15(10), e0239598. <https://doi.org/fbz5>
- Hardwicke, T. E., Serghiou, S., Janiaud, P., Danchev, V., Crüwell, S., Goodman, S. N., & Ioannidis, J. P. A. (2020). Calibrating the scientific ecosystem through meta-research. *Annual Review of Statistics and its Application*, 7, 11-37. <http://doi.org/dv4n>
- Ferrero, M., Hardwicke, T. E., Konstantinidis, E., & Vadillo, M. A. (2020). The effectiveness of refutation texts to correct misconceptions among educators. *Journal of Experimental Psychology: Applied*, 26(3), 411-421. <http://doi.org/dv4m>
- Hardwicke, T. E., Wallach, J. D., Kidwell, M. C., Bendixen, T., Crüwell, S., & Ioannidis, J. P. A. (2020). An empirical assessment of transparency and reproducibility-related research practices in the social sciences (2014-2017). *Royal Society Open Science*, 7, 190806. <http://doi.org/ggm5vg>
- Hardwicke, T. E., & Ioannidis, J. P. A. (2019). Petitions in scientific argumentation: dissecting the request to retire statistical significance. *European Journal of Clinical Investigation*, 49(10), e13162. <http://doi.org/gf8jt>
- Nosek, B. A., Beck, E. D., Campbell, L., Flake, J. K., Hardwicke, T. E., Mellor, D. T., van 't Veer, A. E., & Vazire, S. (2019). Preregistration is hard, and worthwhile. *Trends in Cognitive Sciences*, 23(10), 815-818. <http://doi.org/dv4k>

- Hardwicke, T. E., Frank, M. C., Vazire, S., & Goodman, S. N. (2019). Should psychology journals adopt specialized statistical review? *Advances in Methods and Practices in Psychological Science*, 2(3), 240-249. <http://doi.org/gf4mm5>
- Hardwicke, T. E. & Ioannidis, J. P. A. (2018). Mapping the universe of Registered Reports. *Nature Human Behaviour*, 2, 793–796. <http://doi.org/ggf5xf>
- Hardwicke, T. E., Mathur, M. B., MacDonald, K. E., Nilsonne, G., Banks, G. C., Kidwell, M. C., Hofelich Mohr, A., Clayton, E., Yoon, E. J., Henry Tessler, M., Lenne, R. L., Altman, S., Long, B., & Frank, M. C. (2018). Data availability, reusability, and analytic reproducibility: Evaluating the impact of a mandatory open data policy at the journal Cognition. *Royal Society Open Science*, 5, 180448. <http://doi.org/gdz63s>
- Hardwicke, T. E. & Ioannidis, J. P. A. (2018). Populating the Data Ark: An Attempt to retrieve, preserve, and liberate data from the most highly-cited psychology and psychiatry articles. *PLOS ONE*, 13(8): e0201856. <http://doi.org/cs4z>
- Hardwicke, T. E., Tessler, M. H., Peloquin, B. N., Frank, M. C. (2018). A Bayesian decision-making framework for replication. *Behavioral and Brain Sciences*, 41, e132. <http://doi.org/dv4j>
- Klein, O., Hardwicke, T. E., Aust, F., Breuer, J., Danielsson, H., Hofelich Mohr, A., IJzerman, H., Nilsonne, G., Vanpaemel, W., & Frank, M. C. (2018). A practical guide for transparency in psychological science. *Collabra: Psychology*, 4(1), 20. <http://doi.org/gdqd2p>
- Cristea, I. A., Naudet, F., Shanks, D. R., & Hardwicke, T. E. (2017). Post-retrieval Tetris should not be likened to a ‘cognitive vaccine’. *Molecular Psychiatry*, 23, 1972-1973. <https://perma.cc/X6CV-B644>
- Hardwicke, T. E. & Shanks, D. R. (2016). Reply to Walker and Stickgold: Proposed boundary conditions on memory reconsolidation will require empirical verification. *Proceedings of the National Academy of Sciences*, 113(28), E3993-E3994. <https://doi.org/gzdvd>
- Kidwell, M. C., Lazarević, L. B., Baranski, E., Hardwicke, T. E., Piechowski, S., Falkenberg, L-S., Kennett, C., Slowik, A., Sonnleitner, C., Hess-Holden, C., Errington, T. M., Fiedler, S., & Nosek, B. A. (2016). Badges to acknowledge open practices: A simple, low cost, effective method for increasing transparency. *PLOS Biology*, 14(5): e1002456. <http://doi.org/f8pkck>
- Hardwicke, T. E., Mahdi, T., & Shanks, D. R. (2016). Post-retrieval new learning does not reliably induce human memory updating via reconsolidation. *Proceedings of the National Academy of Sciences*, 113(19), 5206-5211. <https://doi.org/f8kq2d>

- Vadillo, M. A., Hardwicke, T. E., Shanks, D. R. (2016). Publication bias, vote counting, and money priming effects: A comment on Rohrer, Pashler, and Harris (2015) and Vohs (2015). *Journal of Experimental Psychology: General*, 145(5), 655-663. <http://doi.org/f8k7cs>
- Hardwicke, T. E. (2016). Persistence and plasticity in the human memory system: An empirical investigation of the overwriting hypothesis. *PhD Thesis*. <http://doi.org/dv4h>
- Baker, R., Dexter, M., Hardwicke, T. E., Goldstone, A., Kourtzi, Z. (2014). Learning to predict: Exposure to temporal sequences facilitates prediction of future events. *Vision Research*, 99, 124-133. <http://doi.org/f55xxd>
- Ludwig, C. J. H., Farrell, S., Ellis, L. A., Hardwicke, T. E., & Gilchrist, I. D. (2012). Context-gated statistical learning and its role in visual-saccadic decisions. *Journal of Experimental Psychology: General*, 141(1), 150-169. <http://doi.org/dgjbhd>

PRESENTATIONS

- Hardwicke, T. E. (2023). Improving science with meta-research. *School of Psychology, University of New South Wales, Australia*. [invited]
- Hardwicke, T. E. (2023). How should journals handle scientific criticism? *Metascience 2023, USA*. [invited]
- Hardwicke, T. E. (2023). Bad statistics: What can journals do? *Statistical Society of Australia, Queensland Branch, Australia*. [invited]
- Hardwicke, T. E., Salholz-Hillel, M., Malički, M., Szűcs, D., Bendixen, T., Ioannidis, J. P. A. (2022). Statistical guidance to authors at top-ranked journals across 22 scientific disciplines. *International Congress on Peer Review and Scientific Publication, USA*.
- Hardwicke, T. E., Thibault, R. T., Kosie, J. E., Tzavella, L., Bendixen, T., Handcock, S. A., Köneke, V. E., Ioannidis, J. P. A. (2022). Assessment of postpublication critique policies and practice at top-ranked journals in 22 scientific disciplines. *International Congress on Peer Review and Scientific Publication, USA*.
- Hardwicke, T. E. (2022). Defence against the Dark Arts: The potential, progress, and possible pitfalls of preregistration. *Joint Statistical Meetings, USA*. [invited]
- Hardwicke, T. E. (2022). Independent post-publication editors: A proposal to facilitate transparency, accountability, and critical discourse at academic journals. *Society for Improving Psychological Science Conference, Canada*.

- Hardwicke, T. E. (2022). Making transparency the default in scientific research: How are we doing and where are we going? *CIDER Workshop, Leibniz Institute for Research and Information in Education, Germany*. [invited keynote]
- Hardwicke, T. E. (2022). How should journals handle scientific criticism? *METRICS International Forum, Stanford University, USA*. [invited]
- Hardwicke, T. E. (2022). Citation patterns following a strongly contradictory replication result: Four case studies from psychology. *Berkeley Initiative for Transparency in the Social Sciences Annual Meeting. University of California, Berkeley, USA*.
- Hardwicke, T. E. (2021). Computational reproducibility in psychology: Essential, neglected, & achievable. *Association for Interdisciplinary Meta Research and Open Science Conference, Australia*. [invited]
- Hardwicke, T. E. (2021). Share if you can, declare if you can't: Making transparency the default in psychological science. *University of Lancaster, UK*. [invited]
- Hardwicke, T. E. (2021). Preregistration: A pragmatic tool to reduce bias and calibrate confidence in scientific research. *Ludwig Maximilian University of Munich, Germany*. [invited]
- Hardwicke, T. E. (2020). Calibrating the scientific ecosystem through meta-research. *University of Osnabrück, Germany*. [invited]
- Hardwicke, T. E. (2020). Calibrating the scientific ecosystem through meta-research. *University of Bristol, UK*. [invited]
- Hardwicke, T. E. (2020). What is this thing called open science? *Goethe University Frankfurt, Germany*. [invited]
- Hardwicke, T. E. (2020). What is this thing called open science? *Friedrich-Schiller University of Jena, Germany*. [invited]
- Hardwicke, T. E. (2019). Just another brick in the wall? On the diagnosticity of replications and their contribution to scientific progress. *University of Hamburg, Germany*. [invited]
- Hardwicke, T. E., Wallach, J. D., Crüwell, S., & Ioannidis, J. P. A. (2019). Transdisciplinary estimates for the prevalence of transparency and reproducibility related research practices. *Association for Interdisciplinary Meta Research and Open Science Conference, Australia*. [poster]
- Hardwicke, T. E. (2019). Calibrating the scientific ecosystem through meta-research. *University of Trier, Germany*. [invited keynote]

- Hardwicke, T. E. (2018). Rehabilitating the scientific ecosystem. *The Bank of England, UK*. [invited]
- Hardwicke, T. E. (2018). What is this thing we call 'open science'? *Stanford University, USA*. [invited]
- Hardwicke, T. E. (2018). Fostering the preservation, liberation, and re-use of data in psychological science. *University of California, Davis, USA*. [invited]
- Hardwicke, T. E., Mathur, M. B., Nilsson, G., McCarthy, R., Hofelich Mohr, A., & Lindsay, D. S. (2018). Analysis Exchange: Developing an online platform to request verification of analytic reproducibility and statistical expertise. *Society for Improving Psychological Science Conference*.
- Hardwicke, T. E. (2018). SMART pre-registrations: Developing a citation system to facilitate comparison of protocols and papers. *Society for Improving Psychological Science Conference*.
- Hardwicke, T. E. (2017). Principles of reproducible research. *Stanford University, USA*. [invited]
- Hardwicke, T. E. (2017). Open data are not enough: An evaluation of data availability and computational reproducibility at the journal Cognition. *Department of Psychology, Stanford University, USA*.
- Hardwicke, T. E. (2017). Open data are not enough: An evaluation of data availability and computational reproducibility at the journal Cognition. *Society for Improving Psychological Science Conference*.
- Hardwicke, T. E., & Shanks, D. R. (2016). Revisiting the misinformation effect: Does reconsolidation overwrite existing memories? *6th International Conference on Memory, Hungary*. [poster]
- Hardwicke, T. E., Mahdi, T., & Shanks, D. R. (2016). Post-retrieval new learning does not reliably induce human memory updating via reconsolidation. *6th International Conference on Memory, Hungary*.
- Hardwicke, T. E., & Shanks, D. R. (2015). Does reconsolidation enable human memory updating? *Experimental Psychology Society London Meeting, UK*.
- Hardwicke, T. E., & Shanks, D. R. (2014). Does reconsolidation enable human memory updating? *UCL Faculty of Brain Sciences Symposium, UK*. [poster]
- Hardwicke, T. E. (2013). The stability and plasticity of human knowledge. *ESRC UCL DTC Annual Meeting, UK*. [poster]

Hardwicke, T. E., Ludwig, C. J. H., Farrell, S., Ellis, L. A., & Gilchrist, I. D. (2010).
Learning the environmental statistics facilitates effective gaze allocation. *BPS
Welsh Branch Annual Student Conference, UK.*

Hardwicke, T. E., Ludwig, C. J. H., Farrell, S., Ellis, L. A., & Gilchrist, I. D. (2010).
Statistical learning facilitates effective gaze allocation. *BVI Young Researchers'
Colloquium, UK.* [poster]

AWARDS

Einstein Early Career Award (top four finalist). Einstein Foundation, Germany.	2022
Best Poster Prize. Economic and Social Research Council Annual Meeting, UK.	2013
The George Westby Prize (highest degree grade). Cardiff University, UK.	2011
The Stuart Diamond Memorial Prize (best final year project). Cardiff University, UK.	2011
The British Psychological Society Undergraduate Award. Cardiff University, UK.	2011
Best Presentation Award. British Psychological Society Student Conference, UK.	2010

GRANTS & FUNDING

Marie Skłodowska-Curie Individual Fellowship. European Commission, Europe.	2020
Grindley Grant (travel), International Conference on Memory. Experimental Psychology Society, UK.	2016
Travel Grant, International Conference on Memory. University College London, UK.	2016
ESRC Collaborative Placement Funding. Economic and Social Research Council, UK.	2015
Travel Grant, Human Factors in Science Symposium. University College London, UK.	2014

ESRC PhD Studentship. Economic and Social Research Council, UK.	2012
Undergraduate Research Opportunities Program. Cardiff University, UK.	2009

TEACHING EXPERIENCE

Ad-hoc Lecturer ("Evaluating journal policy: Interrupted time series design and reproducibility checks"). <i>Meta-Research Methods (graduate-level)</i> , Berlin Institute of Health QUEST Center, Charité – Universitätsmedizin Berlin, Germany.	2023
Ad-Hoc Lecturer ("Calibrating the scientific ecosystem through meta-research"). <i>Good Research Practices (graduate-level)</i> , Department of Psychology, University of Amsterdam.	2021
Ad-Hoc Lecturer ("Calibrating the scientific ecosystem through meta-research"). <i>Good Research Practices (graduate-level)</i> , Department of Psychology, University of Amsterdam.	2020
Ad-Hoc Lecturer ("Reproducible reports with R Markdown"). <i>Western Psychological Association Convention</i> . [with Michael Frank]	2020
Ad-Hoc Lecturer ("Principles of research reproducibility and transparency"). <i>Essentials of Clinical Research (graduate level)</i> , Stanford Medicine, Stanford University.	2018
Ad-Hoc Lecturer ("Creating reproducible research reports using R Markdown"). <i>SPSP Webinar</i> . [with Michael Frank]	2018
Ad-Hoc Lecturer ("How to write a reproducible scientific paper"). <i>Experimental Methods (graduate-level)</i> , Department of Psychology, Stanford University.	2018
Ad-Hoc Lecturer ("Data visualization in R"). <i>Introduction to R (undergraduate-level)</i> , Department of Psychology, Stanford University.	2018
Ad-Hoc Lecturer ("Repeatability, reproducibility, and validation"). <i>Scientific Method and Bias (undergraduate-level)</i> , Stanford University.	2018

- Ad-Hoc Lecturer** (“Principles of reproducible research”). *Essentials of Clinical Research (graduate level)*, Stanford Medicine, Stanford University. 2018
- Ad-Hoc Lecturer** (“On the nature of replication”). *CSLI Summer School (undergraduate-level)*, Center for the Study of Language and Information, Stanford University. 2017
- Ad-Hoc Lecturer** (“Building a reproducible research workflow”). *Essentials of Clinical Research (graduate-level)*, Stanford Medicine, Stanford University. 2017
- Postgraduate Teaching Assistant.** *Research and Quantitative Methods in Psychology (undergraduate-level)*, Department of Experimental Psychology, University College London. 2014 -2016
- Ad-hoc lecturer** (“Introduction to open science”). *Social Cognition (graduate-level)*, Department of Experimental Psychology, University College London. 2016
- Ad-hoc lecturer** (“Introduction to memory & learning”). *Cognitive and Decision Sciences (graduate-level)*, Department of Experimental Psychology, University College London. 2015

STUDENT SUPERVISION, MENTORSHIP, & ASSESSMENT

PHD STUDENTS

Maia Salholz-Hillel (Current, co-supervisor), Sophia Crüwell (2023, co-supervisor).

UNDERGRADUATE & MASTERS STUDENTS

Mahdi Taqi (2014); Gudmundur Haraldsson (2015); Bethany Manning (2016); Emily Huxtable (2017); Athena Braun (2018); Judith Herbers (2020).

PHD EXAMINER

Natalie Schroyens (2021, KU Leuven). Michael Gordon (2022, Massey University), Alexandra Sarafoglou (2023, University of Amsterdam).

PROFESSIONAL SERVICE

- Committee Member.** UK Reproducibility Network (UKRN) 2023 – present
International Advisory Committee.

- Associate Editor.** Royal Society Open Science. 2023 – present
- Secretary and Board Member.** Association for Interdisciplinary Meta-Research and Open Science (AIMOS). 2022 – present
- Co-organiser.** ReproducibiliTea journal club. University of Melbourne. 2022 – present
- Affiliate.** Meta-Research Innovation Center at Stanford (METRICS). 2019 – present
- Open Science Catalyst.** Berkeley Initiative for Transparency in the Social Sciences (BITSS). 2017 – present
- Open Science Ambassador.** Center for Open Science. 2015 – present
- Conference Program Committee Member.** Society for Improving Psychological Science 2020 Annual Conference [online]. 2020
- Executive Committee Member.** Society for Improving Psychological Science. 2018 – 2019
- Conference Program Committee Chair.** Society for Improving Psychological Science 2019 Annual Conference, The Netherlands. 2019
- Scholar in Residence.** Center for Open Science. 2015
- Convener.** Is Science Broken? [Public debate]. University College London. 2015
- Co-founder.** Postgraduate discussion group CRITUCL. University College London. 2012 – 2015
- Opticon1826 Faculty Editor (Brain Sciences).** University College London. 2012 – 2015
- ESRC Student Representative.** University College London. 2012 – 2014
- Peer-review (journals/conferences).** Advances in Methods and Practices in Psychological Science [7]. Royal Society Open Science [6]. Nature Human Behaviour [6]. Perspectives on Psychological Science [2]. Psychological Bulletin [2]. American Psychologist [2]. Collabra: Psychology [2]. PLOS ONE [2]. International Congress on Peer Review and Scientific Publication [2]. Behavior Research Methods [2]. PNAS [2]. PLOS Computational Biology [1]. Research Integrity and Peer Review [1]. Research Synthesis Methods [1]. Journal of Experimental Psychology: Learning Memory & Cognition [1]. Neuroinformatics [1]. Research Synthesis [1]. BMC Research Notes [1]. General Psychiatry [1]. Prevention Science [1]. Social Psychological Bulletin [1]. Behavioural Brain Research [1]. Nature Communications

[1]. PeerJ [1]. Sports Medicine [1]. JMIR Dermatology [1]. Communications of the ACM [1]. Psychological Methods [1]. Cognition [1]. Psychological Science [1]. Science [1].

Peer-review (funders). National Science Foundation (USA) [1]. National Science Center (Poland) [1]. FWF Austrian Science Fund (Austria) [1]. UK Research and Innovation (UK) [1].

REFERENCES

Available on request.