Tom E. Hardwicke

Melbourne School of Psychological Sciences
University of Melbourne

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ACADEMIC APPOINTMENTS

Research Fellow.   2022 – present
Melbourne School of Psychological Sciences,
University of Melbourne, Australia.
Advisor: Prof. Simine Vazire.

Marie Skłodowska-Curie Research Fellow.   2020 – 2022
Department of Psychology,   [2 years]
University of Amsterdam, The Netherlands.
Advisor: Prof. Eric-Jan Wagenmakers.

Visiting Fellow.   2020 – 2021
Berlin Institute of Health QUEST Center,   [1 year]
Charité – Universitätsmedizin Berlin, Germany.

Postdoctoral Scholar.   2019 – 2020
Meta-Research Innovation Center Berlin (METRIC-B),   [1 year]
Berlin Institute of Health QUEST Center,
Charité – Universitätsmedizin Berlin, Germany.
Advisor: Prof. John Ioannidis.

Postdoctoral Fellow.   2017 – 2018
Meta-Research Innovation Center at Stanford (METRICS),   [2 years]
Stanford University, USA.
Advisors: Prof. John Ioannidis, Prof. Steven Goodman, & Prof.
Michael Frank.

EDUCATION

PhD Experimental Psychology.   2012 – 2016
University College London, UK.   [4 years]
Advisor: Prof. David Shanks.

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. (2023). 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*, *10*, 230568. 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., Munafò, 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/gf8j4t

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/gzdv

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. *Therapeutics Initiative, University of British Columbia, Canada*. [invited]

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 the Improvement of 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., Nilsonne, 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 the Improvement of Psychological Science Conference.*

Hardwicke, T. E. (2018). SMART pre-registrations: Developing a citation system to facilitate comparison of protocols and papers. *Society for the Improvement of 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 the Improvement of 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).   2022
Einstein Foundation, Germany.

Best Poster Prize.   2013
Economic and Social Research Council Annual Meeting, UK.

The George Westby Prize (highest degree grade).   2011
Cardiff University, UK.

The Stuart Diamond Memorial Prize (best final year project).   2011
Cardiff University, UK.

The British Psychological Society Undergraduate Award.   2011
Cardiff University, UK.

Best Presentation Award.   2010
British Psychological Society Student Conference, UK.

GRANTS & FUNDING

Marie Skłodowska-Curie Individual Fellowship.   2020
European Commission, Europe.

Grindley Grant (travel), International Conference on Memory.   2016
Experimental Psychology Society, UK.

Travel Grant, International Conference on Memory.   2016
University College London, UK.

ESRC Collaborative Placement Funding.   2015
Economic and Social Research Council, UK.

Travel Grant, Human Factors in Science Symposium.   2014
University College London, UK.

ESRC PhD Studentship.   2012
Economic and Social Research Council, UK.

Undergraduate Research Opportunities Program.   2009
Cardiff University, UK.

TEACHING EXPERIENCE

Ad-hoc Lecturer ("Evaluating journal policy: Interrupted time series   2023
design and reproducibility checks"). *Meta-Research Methods
(graduate-level)*, Berlin Institute of Health QUEST Center,
Charité – Universitätsmedizin Berlin, Germany.

Ad-Hoc Lecturer ("Calibrating the scientific ecosystem through   2021
meta-research"). *Good Research Practices (graduate-level),* Department
of Psychology, University of Amsterdam.

Ad-Hoc Lecturer ("Calibrating the scientific ecosystem through   2020
meta-research"). *Good Research Practices (graduate-level),* Department
of Psychology, University of Amsterdam.

Ad-Hoc Lecturer ("Reproducible reports with R Markdown").   2020
Western Psychological Association Convention. [with Michael Frank]

Ad-Hoc Lecturer ("Principles of research reproducibility and   2018
transparency"). *Essentials of Clinical Research (graduate level),*
Stanford Medicine, Stanford University.

Ad-Hoc Lecturer ("Creating reproducible research reports using R   2018
Markdown"). *SPSP Webinar*. [with Michael Frank]

Ad-Hoc Lecturer ("How to write a reproducible scientific paper").   2018
Experimental Methods (graduate-level), Department of Psychology,
Stanford University.

Ad-Hoc Lecturer ("Data visualization in R"). *Introduction to R   2018
(undergraduate-level)*, Department of Psychology, Stanford
University.

Ad-Hoc Lecturer ("Repeatability, reproducibility, and validation").   2018
Scientific Method and Bias (undergraduate-level), Stanford University.

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

Senior Editor for Statistics, Transparency, and Rigour. Psychological Science.	Starting 2024
Lead scientific organiser. Royal Society Meeting on the *Promises and Pitfalls of Preregistration*. The Royal Society, UK.	2023 – present

Committee Member. UK Reproducibility Network (UKRN) International Advisory Committee.	2023 – present
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 the Improvement of Psychological Science 2020 Annual Conference.	2020
Executive Committee Member. Society for the Improvement of Psychological Science.	2018 – 2019
Conference Program Committee Chair. Society for the Improvement of 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 [8]. 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.