Framework for
Open and
Reproducible
Research Training

FORRT

Phase 2

Please do not **add terms, suggest, or edit** this document.

The project is temporarily ***frozen***.

Instructions will follow soon.

Please contact flavio.azevedo@uni-jena.de or check on the FORRT Slack channel in the meantime. See here for information on Phase 1 of FORRT's Glossary Project.

We are now working on our manuscript to be submitted to Nature Human Behaviour as a comment, as well as its implementation in FORRT's website (https://forrt.org/glossary)

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M-Z

Please read the introduction and methods first. We are aiming to publish this glossary as a manuscript; a teaching resource that acts as an access point for scholars learning about openness and reproducibility in research and pedagogy. Please note that at this stage we are looking for contributions to the glossary, not to the intro/methods. Please add your name and contributions to the contributions spreadsheet as you make your contributions. Important links and contents are on the next page.

NOTIFICATIONS
(4th June 2021)

- **THIS DOCUMENT NOW CONTAINS TERMS BEGINNING WITH M - Z**
- **SEE THIS DOC FOR TERMS BEGINNING A - L**
- There is now a table of contents for the individual terms (pages 3-10)
- We have marked many terms with [*marked as completed], these terms are ready to go! (if you see a problem with it, though, please comment so we can fix)
- We have marked lots of terms with **several more reviews/comments/approvals requested to mark as complete**, these terms are already great, but need some final checks or more contributions (we would like 4-5 people at least to agree on definitions) - writing "I agree with this" is entirely valid and useful here!
- If you know someone that might be interested in contributing, please invite them to the project or contact sam.parsons@psy.ox.ac.uk or flavio.azevedo@uni-jena.de
- Remember to add your ORCID to the contributors spreadsheet!
- Feel free to tag writing team leaders on comments by assigning it to sam.parsons@psy.ox.ac.uk or flavio.azevedo@uni-jena.de

Important links:

www.forrt.org | join our initiative

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Contributors spreadsheet (please fill it in)

FORRT slack - join us!

FORRT email - contact us!

Existing glossaries or resources to pull from:

CASRAI Open Access glossary
CRediT Taxonomy
FOSTER Open Science Training Glossary
FOSTER Open Science Taxonomy
OSAOS - What is Open
Open Scholarship Survey
Open Research Glossary
Open Research Glossary [2]
PsyTeachR
What is Open Scholarship
The Turing Way Glossary
BrainHack
TemaTrees
lottery.fr

[table of contents]

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Terms table of contents:

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- Open Scholarship Knowledge Base #review needed#
- Open Science [complete]
- Open Science Framework [complete]
- Open Source software [complete]
- Open washing [complete]
- Optional Stopping [complete]
- ORCID (Open Researcher and Contributor ID) [complete]
- Overlay Journal [complete]

P

- P-curve [complete]
- P-hacking [complete]
- *p-value [complete]*
- Paper Mill [complete]
- Paradata [complete]
- PARKing [complete]
- Participatory Research [complete]
- Patient and Public Involvement (PPI) [complete]
- Paywall [complete]
- PCI (Peer Community In) [complete]
- PCI Registered Reports [complete]
- Plan S [complete]
- Positionality [complete]
- Positionality Map [complete]
- Post Hoc [complete]
- Post Publication Peer Review #review needed#
- Posterior distribution [complete]
- Predatory Publishing [complete]
- PREPARE Guidelines [complete]
- Preprint [complete]
- Preregistration [complete]
- Preregistration Pledge [complete]
- PRO (peer review openness) initiative [complete]
- Prior distribution **almost done**
- Pseudonymisation [complete]
- Pseudoreplication [complete]
- Psychometric meta-analysis [complete]
- Publication bias (File Drawer Problem) [complete]
- Public Trust in Science [complete]
- Publish or Perish [complete]

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- PubPeer #review needed#
- Python [complete]

Q

- Qualitative research [complete]
- Quantitative research [complete]
- Questionable Research Practices or Questionable Reporting Practices (QRPs) [complete]
- Questionable Measurement Practices (QMP) [complete]

R

- R [complete]
- Red Teams [complete]
- Reflexivity [complete]
- Registry of Research Data Repositories [complete]
- Reliability [complete]
- Research Cycle [complete]
- Research Data Management [complete]
- Research Protocol [complete]
- Research workflow [complete]
- Registered Report [complete]
- Repeatability [complete]
- Replicability [complete]
- Replication Markets **almost complete**
- Reporting Guideline [complete]
- Repository [complete]
- ReproducibiliTea [complete]
- Reproducibility [complete]
- Reproducibility crisis (aka Replicability or replication crisis) [complete]
- Reproducibility Network [complete]
- Research Contribution Metric (p) **almost done**
- Research integrity [complete]
- Researcher degrees of freedom [complete]
- RepliCATs project [complete]
- Responsible Research and Innovation [complete]
- Reverse p-hacking [complete]
- RIOT Science Club [complete]
- Robustness (analyses) [complete]

S

- Salami slicing [complete]
- Scooping [complete]

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- Semantometrics **almost done**
- Sensitive research [complete]
- Sequence-determines-credit approach (SDC) **almost done**
- Sherpa Romeo [complete]
- Single-blind peer review [complete]
- Statistical significance [complete]
- Statistical validity **almost done**
- StudySwap [complete]
- Slow science [complete]
- Society for Open, Reliable, and Transparent Ecology and Evolutionary biology (SORTEE) [complete]
- Society for the Improvement of Psychological Science (SIPS) [complete]
- Social class [complete]
- Social integration **almost done**
- Specification Curve Analysis **almost done**
- Statistical Assumptions [complete]
- Statistical power [complete]
- STRANGE [complete]
- Systematic Review [complete]

T

- Theory #review needed#
- Theory building **almost done**
- Transparency [complete]
- Transparency Checklist [complete]
- Triple-blind peer review [complete]
- TRUST Principles [complete]
- Type I error [complete]
- Type II error [complete]
- Type M error [complete]
- Type S error [complete]

U

- Under-representation [complete]
- Universal design for learning (UDL) [complete]

V

- Validity [complete]
- Version control [complete]

W

- Webometrics **almost done**
- WEIRD [complete]

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Project methods and guidelines

We have drafted this document to act as a centralised working space for this project across its phases of development:

1. **Concept**

In this phase the lead writing team developed the overall project concept, including the first version of this document outlining how we would like to proceed with facilitating and recognising contributions from the community.

2. **Community contributions - current**

In this phase we aim to populate the glossary section. We will share an open invite for contributions via the FORRT community and social media. **We invite all interested to**: write definitions, comment on existing definitions, add alternative definitions where applicable, and suggest relevant references. **If you feel that key terms are missing, please add it** - you can let us know, or ask contact us with suggestions in the FORRT slack or email sam.parsons@psy.ox.ac.uk (please CC flavio.azevedo@uni-jena.de during the period Feb 12 to March 1st). The full list of terms will form part of a larger glossary to be hosted on https://FORRT.org, once all terms have been added, the **lead writing team** (Parsons, Azevedo, & Elsherif) will develop **an abridged version** to submit as a manuscript. We outline the kinds of contributions and their correspondence to authorship in more detail in the next section. Don't forget to add your name and details to the contributions spreadsheet.

3. **Manuscript development and submission**

There are two outputs for this project. First, the entire glossary will appear on the FORRT website. Second, an abridged version will be submitted for publication. The lead writing team will handle the overall manuscript development. A final version will be shared so that

all contributors have the chance to check that they are happy with the final version of the manuscript.

Contributions and Authorship

In this project we will use the CREDIT taxonomy (https://casrai.org/credit/) in this prepared contributors spreadsheet. Please add your details (including ORCID) and contributions as you make them. This will facilitate the development of this project, allow us to easily communicate with all contributors, and ensure that all contributions are recognised. The **lead writing team** (Parsons, Azevedo, & Elsherif) will handle the development and structuring of the manuscript, project administration, formatting, etc. For the manuscript submission, the lead writing team will be considered joint first authors. Every few days, one of the team will review this document to finalise definitions that have had sufficient input.

We invite several specific contributions: ***original draft preparation***, and ***review & editing***. To help decide what contributions to select, please refer to these outlines. Please add your details to the contributor spreadsheet as you make any contributions. This will also allow us to contact you as we enter later stages of the manuscript development.
It is important to note that it is not our aim to distinguish these contributions in terms of prestige. If you are uncertain, please contact one of the lead writing team members.

Writing - Original Draft Preparation: We consider this contribution as, for example, writing at least one full glossary entry. If you wrote the original draft for an entry, please add your name to the "Drafted by" field and be sure to tick the "Original Draft Preparation" checkbox in the contributors spreadsheet.

Writing - Review & Editing: We consider this contribution as, for example, providing constructive comments, feedback, and approval, on more than 5 glossary entries (we acknowledge that towards the end of the project the main contribution will be checking

definitions for agreement and so it may be difficult for some people to make large writing contributions. Please remember to add your name to the "Reviewed by" field and be sure to tick the "Review & Editing" checkbox in the contributors spreadsheet. **Please do not overwrite other's names**

The Definitions

Each entry should follow the below format. The definitions should be concise, no more than three or four sentences, using non-technical language. They must also contain enough information to be useful. **Please include a citation** for an appropriate reference that gives more detail or an example of the term in practice (if possible, please add the APA formatted reference to the references section - or provide enough information for one of the lead writing team to find it (e.g., the page number being quoted from).

Where there are several, potentially competing, definitions for a term (e.g. some fields use reproducibility and replicability in opposing ways), please enter this as an **alternative definition**. Alternative definitions should be distinct in some way, and not rephrasing of other definitions. **Where there are alternative definitions,** it would be **maximally beneficial** to include a reference for all possible definitions: remember that **the goal is to educate on existing terms** rather than asserting authority about what is ***the*** correct definition**.**

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Here is an example definition (copied from below on 10th March):

CRediT

Definition: The Contributor Roles Taxonomy (CRediT; https://casrai.org/credit/) is a high-level taxonomy, including 14 roles, that can be used to indicate the roles typically adopted by contributors to scientific scholarly output. The roles describe each contributor's specific contribution to the scholarly output. They can be assigned multiple times to different authors and one author can also be assigned multiple roles. CRediT includes the following roles: Conceptualization, Data curation, Formal Analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, Writing – review & editing. A description of the different roles can be found in the work of Brand et al., (2015).

Related terms: Authorship

Alternative definition: (if applicable)

Related terms to alternative definition: (if applicable)

Reference(s): Brand et al. (2015); Holcombe (2019); https://casrai.org/credit/

Drafted by: Sam Parsons

Reviewed (or Edited) by: Myriam A. Baum; Matt Jaquiery; Connor Keating; Yuki Yamada

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Here is an empty copy that can be copied below as needed.

Term placeholder

Definition: [fill here]

Related terms: [fill here]

Reference: [fill here]

Alternative definition: (if applicable)

Related terms to alternative definition: (if applicable)

Reference(s): [fill here]

Originally drafted by: [fill here]

Reviewed (or Edited) by: [fill here]

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The Glossary

Introduction

In the last decade, the Open Science movement has introduced and modified many research practices. The breadth of these initiatives can be overwhelming, and digestible introductions to these topics are valuable (e.g. Crüwell et al. 2019; Kathawalla, Silverstein, & Syed, 2020). Creating a shared understanding of the purposes of these initiatives facilitates discussions of the strengths and weaknesses of each practice, ultimately helping us work towards a research utopia (Nosek & Bar-Anan, 2012).

Accompanying this cultural shift towards increased transparency and rigour has been a wealth of terminology within the zeitgeist of research practice and culture. For those unfamiliar, the new nomenclature can be a barrier to follow and join the discussions; for those familiar, potentially vague or competing definitions can cause confusion and misunderstandings. For example, even the "classic" 2015 paper "Estimating the reproducibility of psychological science" (Open Science Collaboration, 2015) can be argued to assess the *replicability* of research findings.

In order to reduce barriers to entry and understanding, we present a Glossary of terms relating to open scholarship. We aim that the glossary will help clarify terminologies, including where terms are used differently/interchangeably or where terms are less known in some fields or among students. We also hope that this glossary will be a welcome resource for those new to these concepts, and that it helps grow their confidence in navigating discussions of open scholarship. We also hope that this glossary aids in mentoring and teaching, and allows newcomers and experts to communicate efficiently. Here, we present 50

terms that we believe would be most useful to newcomers. A broader glossary containing many more terms will also be available online at the website of the Framework of Open and Reproducible Research Teaching (FORRT; forrt.org). FORRT is a grassroots educational initiative aiming to integrate open and reproducible science principles into higher education as well as supporting teachers and mentors to address its pedagogical challenges.

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Glossary of Terms

M

Manel [complete]

Definition: Portmanteau for 'male panel', usually to refer to speaker panels at conferences entirely composed of (usually caucasian) males. Typically discussed in the context of gender disparities in academia (e.g., women being less likely to be recognised as experts by their peers and, subsequently, having fewer opportunities for career development).

Related terms: Bropenscience; Diversity; Equity; Feminist psychology; Inclusion; Under-representation

Reference(s): Bouvy and Mujoomdar (2019); Goodman and Pepinsky (2019); Nittrouer et al. (2018); Rodriguez and Günther (2020)

Drafted by: Sam Parsons

Reviewed (or Edited) by: Mahmoud Elsherif; Thomas Rhys Evans; Beatrice Valentini; Christopher Graham; Flávio Azevedo

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Many authors [complete]

Definition: Large-scale collaborative projects involving tens or hundreds of authors from different institutions. This kind of approach has become increasingly common in psychology and other sciences in recent years as opposed to research carried out by small teams of authors, following earlier trends which have been observed e.g. for high-energy physics or biomedical research in the 1990s. These large international scientific consortia work on a research project to bring together a broader range of expertise and work collaboratively to produce manuscripts.

Related terms: Collaboration; Consortia; Consortium authorship; Crowdsourcing; Hyperauthorship; Multiple-authors; Team science

Reference(s): Cronin (2001); Moshontz et al. (2021); Wuchty et al. (2007)

Drafted by: Yu-Fang Yang

Reviewed (or Edited) by: Christopher Graham; Adam Parker; Charlotte R. Pennington; Birgit Schmidt; Beatrice Valentini

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Many Labs [complete]

Definition: A crowdsourcing initiative led by the Open Science Collaboration (2015) whereby several hundred separate research groups from various universities run replication studies of published effects. This initiative is also known as “Many Labs I” and was subsequently followed by a “Many Labs II” project that assessed variation in replication results across samples and settings. Similar projects include ManyBabies, EEGManyLabs, and the Psychological Science Accelerator.

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Related terms: Collaboration; Many analysts; Many Labs I; Many Labs II; Open Science Collaboration; Replication

Reference(s): Ebersole et al. (2016); Frank et al. (2017); Klein et al. (2014); Klein et al. (2018); Moshontz et al. (2018); Open Science Collaboration (2015); Pavlov et al. (2020)

Drafted by: Sam Parsons

Reviewed (or Edited) by: Helena Hartmann; Charlotte R. Pennington; Mirela Zaneva

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Massive Open Online Courses (MOOCs) [complete]

Definition: Exclusively online courses which are accessible to any learner at any time, are typically free to access (while not necessarily openly licensed), and provide video-based instructions and downloadable data sets and exercises. The "massive" aspect describes the high volume of students that can access the course at any one time due to their flexibility, low or no cost, and online nature of the materials.

Related terms: Accessibility; Distance education; Inclusion; Open learning

Reference(s): Baturay (2015); https://opensciencemooc.eu/

Drafted by: Elizabeth Collins

Reviewed (or Edited) by: Tsvetomira Dumbalska; Mahmoud Elsherif; Helena Hartmann; Sam Parsons; Charlotte R. Pennington

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Massively Open Online Papers (MOOPs) [complete]

Definition: Unlike the traditional collaborative article, a MOOP follows an open participatory and dynamic model that is not restricted by a predetermined list of contributors.

Related terms: Citizen science; Collaboration; Crowdsourced Research; Many authors; Team science

Reference(s): Himmelstein et al. (2019); Tennant et al. (2019)

Drafted by: Ali H. Al-Hoorie

Reviewed (or Edited) by:

Matthew effect (in science) [complete]

Definition: Named for the 'rich get richer; poor get poorer' paraphrase of the Gospel of Matthew. Eminent scientists and early-career researchers with a prestigious fellowship are disproportionately attributed greater levels of credit and funding for their contributions to science while relatively unknown or early-career researchers without a prestigious fellowship tend to get disproportionately little credit for comparable contributions. The impact is a substantial cumulative advantage that results from modest initial comparative advantages (and vice versa).

Related terms: Matthew effect in education; Stigler's law of eponymy

Reference(s): Bol et al. (2018); Bornmann et al. (2019); Merton (1968)

Drafted by: Tamara Kalandadze

Reviewed (or Edited) by: Bradley Baker; Tsvetomira Dumbalska; Mahmoud Elsherif; Matt Jaquiery; Charlotte R. Pennington

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Meta-analysis [complete]

Definition: A meta-analysis is a statistical synthesis of results from a series of studies examining the same phenomenon. A variety of meta-analytic approaches exist, including random or fixed effects models or meta-regressions, which allow for an examination of moderator effects. By aggregating data from multiple studies, a meta-analysis could provide a more precise estimate for a phenomenon (e.g. type of treatment) than individual studies. Results are usually visualized in a forest plot. Meta-analyses can also help examine heterogeneity across study results. Meta-analyses are often carried out in conjunction with systematic reviews and similarly require a systematic search and screening of studies. Publication bias is also commonly examined in the context of a meta-analysis and is typically visually presented via a funnel plot.

Related terms: CONSORT; Correlational Meta-Analysis; Effect size; Evidence synthesis; Non-Intervention, Reproducible, and Open Systematic Reviews (NIRO-SR); PRISMA; Publication bias (File Drawer Problem); STROBE; Systematic Review

Reference(s): Borenstein et al. (2011); Yeung et al. (2021)

Drafted by: Martin Vasilev; Siu Kit Yeung

Reviewed (or Edited) by: Thomas Rhys Evans; Tamara Kalandadze; Charlotte R. Pennington; Mirela Zaneva

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Metadata [complete]

Definition: Structured data that describes and synthesises other data. Metadata can help find, organize, and understand data. Examples of metadata include creator, title,

contributors, keywords, tags, as well as any kind of information necessary to verify and understand the results and conclusions of a study such as codebook on data labels, descriptions, the sample and data collection process.

Related terms: Data; Open Data

Alternative definition: (if applicable) Data about data

Reference(s): Gollwitzer et al. (2020); https://schema.datacite.org/

Drafted by: Matt Jaquiery

Reviewed (or Edited) by: Helena Hartmann; Tina Lonsdorf; Charlotte R. Pennington; Mirela Zaneva

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Meta-science or Meta-research [complete]

Definition: The scientific study of science itself with the aim to describe, explain, evaluate and/or improve scientific practices. Meta-science typically investigates scientific methods, analyses, the reporting and evaluation of data, the reproducibility and replicability of research results, and research incentives.

Related terms:

Reference(s): Ioannidis et al. (2015); Peterson and Panofsky (2020)

Drafted by: Elizabeth Collins

Reviewed (or Edited) by: Tamara Kalandadze; Lisa Spitzer; Olmo van den Akker

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Model (computational) [complete]

Definition: Computational models aim to mathematically translate the phenomena under study to better understand, communicate and predict complex behaviours.

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Related terms: algorithms; data simulation; hypothesis; theory; theory building

Reference(s): Guest and Martin (2020); Wilson and Collins (2019)

Drafted by: Charlotte R. Pennington

Reviewed (or Edited) by: Jamie P. Cockcroft; Mahmoud Elsherif; Meng Liu; Yu-Fang Yang; Michele C. Lim

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Model (statistical) [complete]

Definition: A mathematical representation of observed data that aims to reflect the population under study, allowing for the better understanding of the phenomenon of interest, identification of relationships among variables and predictions about future instances. A classic example would be the application of Chi square to understand the relationship between smoking and cancer (Doll & Hill, 1954).

Reference(s): Doll and Hill (1954)

Related terms: Bayesian Inference; Model (computational); Model (philosophy); Null Hypothesis Significance Testing (NHST)

Alternative definition: A mathematical model that embodies a set of statistical assumptions concerning the generation of sample data and is used to apply statistical analysis.

Drafted by: Jamie P. Cockcroft

Reviewed (or Edited) by: Alaa AlDoh; Mahmoud Elsherif; Meng Liu; Catia M. Oliveira; Charlotte R. Pennington

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Model (philosophy) **almost done**

Definition: The process by which a verbal description is formalised to remove ambiguity, while also constraining the dimensions a theory can span. The model is thus data derived. “Many scientific models are representational models: they represent a selected part or aspect of the world, which is the model’s target system” (Frigg & Hartman, 2020).

Related terms: Hypothesis; Theory; Theory building

Reference(s): Frigg and Hartman, (2020); Glass and Martin (2008); Guest and Martin (2020)

Drafted by: Mahmoud Elsherif

Reviewed (or Edited) by: Charlotte R. Pennington; Michele C. Lim

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Multi-Analyst Studies [complete]

Definition: In typical empirical studies, a single researcher or research team conducts the analysis, which creates uncertainty about the extent to which the choice of analysis influences the results. In multi-analyst studies, two or more researchers independently analyse the same research question or hypothesis on the same dataset. According to Aczel and colleagues (2021), a multi-analyst approach may be beneficial in increasing our confidence in a particular finding; uncovering the impact of analytical preferences across research teams; and highlighting the variability in such analytical approaches.

Related terms: Analytic flexibility; Crowdsourcing science; Data Analysis; Garden of Forking Paths; Multiverse Analysis; Researcher Degrees of Freedom; Scientific Transparency

Reference(s): Aczel et. al. (2021); Silberzahn et al. (2018)

Drafted by: Sam Parsons

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Reviewed (or Edited) by: Tsvetomira Dumbalska; Mahmoud Elsherif; William Ngiam; Charlotte R. Pennington; Graham Reid; Barnabas Szaszi; Flávio Azevedo

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Multiplicity [complete]

Definition: Potential inflation of Type I error rates (incorrectly rejecting the null hypothesis) because of multiple statistical testing, for example, multiple outcomes, multiple follow-up time points, or multiple subgroup analyses. To overcome issues with multiplicity, researchers will often apply controlling procedures (e.g., Bonferroni, Holm-Bonferroni; Tukey) that correct the alpha value to control for inflated Type I errors. However, by controlling for Type I errors, one can increase the possibility of Type II errors (i.e., incorrectly accepting the null hypothesis).

Related terms: Alpha; False Discovery Rate; Multiple comparisons problem; Multiple testing; Null Hypothesis Significance Testing (NHST)

Reference(s): Sato (1996); Schultz and Grimes (2005)

Drafted by: Aidan Cashin

Reviewed (or Edited) by: Jamie P. Cockcroft; Mahmoud Elsherif; Meng Liu; Charlotte R. Pennington

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Multiverse analysis [complete]

Definition: Multiverse analyses are based on all potentially equally justifiable data processing and statistical analysis pipelines that can be employed to test a single hypothesis. In a data multiverse analysis, a single set of raw data is processed into a multiverse of data sets by applying all possible combinations of justifiable preprocessing choices. Model

multiverse analyses apply equally justifiable statistical models to the same data to answer the same hypothesis. The statistical analysis is then conducted on all data sets in the multiverse and all results are reported which enhances promoting transparency and illustrates the robustness of results against different data processing (data multiverse) or statistical (model multiverse) pipelines). Multiverse analysis differs from Specification curve analysis with regards to the graphical displays (a histogram and tile plota rather than a specification curve plot).

Related terms: Garden of forking paths; Robustness (analyses); Specification curve analysis; Vibration of effects

Reference(s): Del Giudice and Gangestad (2021); Steegen et al. (2016)

Drafted by: Tina Lonsdorf; Flávio Azevedo

Reviewed (or Edited) by: Mahmoud Elsherif; Adrien Fillon; William Ngiam; Sam Parsons

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N

Name Ambiguity Problem [complete]

Definition: An attribution issue arising from two related problems: authors may use multiple names or monikers to publish work, and multiple authors in a single field may share full names. This makes accurate identification of authors on names and specialisms alone a difficult task. This can be addressed through the creation and use of unique digital identifiers that act akin to digital fingerprints such as ORCID.

Related terms: Authorship; DOI (digital object identifier); ORCID (Open Researcher and Contributor ID)

Reference(s): Wilson and Fenner (2012)

Drafted by: Shannon Francis

Reviewed (or Edited) by: Tsvetomira Dumbalska; Mahmoud Elsherif; Helena Hartmann; Wanyin Li; Charlotte R. Pennington

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Named entity-based Text Anonymization for Open Science (NETANOS) [complete]

Definition: A free, open-source anonymisation software that identifies and modifies named entities (e.g. persons, locations, times, dates). Its key feature is that it preserves critical context needed for secondary analyses. The aim is to assist researchers in sharing their raw text data, while adhering to research ethics.

Related terms: Anonymity; Confidentiality; Data sharing; Research ethics

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Reference(s): Kleinberg et al. (2017)

Originally drafted by: Norbert Vanek

Reviewed (or Edited) by: Jamie P. Cockcroft; Aleksandra Lazić; Charlotte R. Pennington; Sam Parsons

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Non-Intervention, Reproducible, and Open Systematic Reviews (NIRO-SR) [complete]

Definition: A comprehensive set of tools to facilitate the development, preregistration and dissemination of systematic literature reviews for non-intervention research. Part A represents detailed guidelines for creating and preregistering a systematic review protocol in the context of non-intervention research whilst preparing for transparency. Part B represents guidelines for writing up the completed systematic review, with a focus on enhancing reproducibility.

Related terms: Knowledge accumulation; Systematic review; Systematic Review Protocol

Reference(s): Topor et al. (2021)

Drafted by: Asma Assaneea

Reviewed (or Edited) by: Tsvetomira Dumbalska; Thomas Rhys Evans; Tamara Kalandadze; Jade Pickering; Mirela Zaneva

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Null Hypothesis Significance Testing (NHST) [complete]

Definition: A frequentist approach to inference used to test the probability of an observed effect against the null hypothesis of no effect/relationship (Pernet, 2015).

Such a conclusion is arrived at through use of an index called the *p*-value. Specifically, researchers will conclude an effect is present when an a priori alpha threshold, set by the researchers, is satisfied; this determines the acceptable level of uncertainty and is closely related to Type I error.

Related terms: Inference; P-value; Statistical significance; Type I error

Reference: Lakens et al. (2018); Pernet (2015); Spence and Stanley (2018)

Originally drafted by: Alaa AlDoh

Reviewed (or Edited) by: Jamie P. Cockcroft; Annalise A. LaPlume; Charlotte R. Pennington; Sonia Rishi

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

O

Objectivity [complete]

Definition: The idea that scientific claims, methods, results and scientists themselves should remain value-free and unbiased, and thus not be affected by cultural, political, racial or religious bias as well as any personal interests (Merton, 1942).

Related terms: Communality; Mertonian norms; Neutrality

Reference(s): Macfarlane and Cheng (2008); Merton (1942)

Originally drafted by: Ryan Millager

Reviewed (or Edited) by: Mahmoud Elsherif; Madeleine Ingham; Kai Krautter; Sam Parsons; Charlotte R. Pennington

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Ontology (Artificial Intelligence) [complete]

Definition: A set of axioms in a subject area that help classify and explain the nature of the entities under study and the relationships between them.

Related terms: Axiology; Epistemology; Taxonomy

Reference: Noy and McGuinness (2001)

Originally drafted by: Emma Norris

Reviewed (or Edited) by: Charlotte R. Pennington; Graham Reid

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Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Open access [complete]

Definition: "Free availability of scholarship on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these research articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself" (Boai, 2002). Different methods of achieving open access (OA) are often referred to by color, including Green Open Access (when the work is openly accessible from a public repository), Gold Open Access (when the work is immediately openly accessible upon publication via a journal website), and Platinum (or Diamond) Open Access (a subset of Gold OA in which all works in the journal are immediately accessible after publication from the journal website without the authors needing to pay an article processing fee [APC]).

Related terms: Article Processing Charge; FAIR principles; Paywall; Preprint; Repository

Reference(s): Budapest Open Access Initiative (2002); Suber (2015)

Drafted by: Mahmoud Elsherif

Reviewed (or Edited) by: Nick Ballou; Helena Hartmann; Aoife O'Mahony; Ross Mounce; Mariella Paul; Charlotte R. Pennington

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Open Code [complete]

Definition: Making computer code (e.g., programming, analysis code, stimuli generation) freely and publicly available in order to make research methodology and analysis transparent and allow for reproducibility and collaboration. Code can be

made available via open code websites, such as GitHub, the Open Science Framework, and Codeshare (to name a few), enabling others to evaluate and correct errors and re-use and modify the code for subsequent research.

Related terms: Computational Reproducibility; Open Access; Open Licensing; Open Material; Open Source; Open Source Software; Reproducibility; Syntax

Reference: Easterbrook (2014)

Originally drafted by: Charlotte R. Pennington

Reviewed (or Edited) by: Elizabeth Collins; Mahmoud Elsherif; Christopher Graham; Emma Henderson

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Open Data [complete]

Definition: Open data refers to data that is freely available and readily accessible for use by others without restriction, "Open data and content can be freely used, modified, and shared by anyone for any purpose" (https://opendefinition.org/). Open data are subject to the requirement to attribute and share alike, thus it is important to consider appropriate Open Licenses. Sensitive or time-sensitive datasets can be embargoed or shared with more selective access options to ensure data integrity is upheld.

Related terms: Badges (Open Science); Data availability; FAIR principles; Metadata; Open Licenses; Open Material; Reproducibility; Secondary data analysis

Reference: https://opendefinition.org/ (version 2.1); https://opendatahandbook.org/guide/en/what-is-open-data/

Originally drafted by: Lisa Spitzer

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Reviewed (or Edited) by: Sarah Ashcroft-Jones; Mahmoud Elsherif; Helena Hartmann; Matt Jaquiery; Flávio Azevedo; Ross Mounce; Charlotte R. Pennington; Steven Verheyen

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Open Educational Resources (OERs) [complete]

Definition: Learning materials that can be modified and enhanced because their creators have given others permission to do so. The individuals or organizations that create OERs—which can include materials such as presentation slides, podcasts, syllabi, images, lesson plans, lecture videos, maps, worksheets, and even entire textbooks—waive some (if not all) of the copyright associated with their works, typically via legal tools like Creative Commons licenses, so others can freely access, reuse, translate, and modify them.

Related terms: Accessibility; FORRT; Open access; Open Licenses; Open Material

Reference: https://opensource.com/resources/what-open-education; https://en.unesco.org/themes/building-knowledge-societies/oer

Originally drafted by: Aleksandra Lazić

Reviewed (or Edited) by: Sam Parsons; Charlotte R. Pennington; Steven Verheyen; Elizabeth Collins

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Open Educational Resources (OER) Commons #review needed#

Definition: OER Commons (with OER standing for open educational resources) is a freely accessible online library allowing teachers to create, share and remix educational resources. The goal of the OER movement is to stimulate “collaborative teaching and

learning" (https://www.oercommons.org/about) and provide high-quality educational resources that are accessible for everyone.

Related terms: Equity; FORRT; Inclusion; Open Scholarship Knowledge Base; Open Science Framework

Reference(s): www.oercommons.org

Drafted by: Ali H. Al-Hoorie

Reviewed (or Edited) by: Mahmoud Elsherif, Gisela H. Govaart

Open Licenses [complete]

Definition: Open licenses are provided with open data and open software (e.g., analysis code) to define how others can (re)use the licensed material. In setting out the permissions and restrictions, open licenses often permit the unrestricted access, reuse and retribution of an author's original work. Datasets are typically licensed under a type of open licence known as a Creative Commons license (e.g., MIT, Apache, and GPL). These can differ in relatively subtle ways with GPL licenses (and their variants) being Copyleft licenses that require that any derivative work is licensed under the same terms as the original.

Related terms: Creative Commons (CC) License; Copyleft; Copyright; Licence; Open Data; Open Source

Reference(s): https://opensource.org/licenses

Originally drafted by: Andrew J. Stewart

Reviewed (or Edited) by: Elizabeth Collins; Sam Parsons; Graham Reid; Steven Verheyen

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Open Material [complete]

Definition: Author's public sharing of materials that were used in a study, "such as survey items, stimulus materials, and experiment programs" (Kidwell et al., 2016, p. 3). Digitally-shareable materials are posted on open access repositories, which makes them publicly available and accessible. Depending on licensing, the material can be reused by other authors for their own studies. Components that are not digitally-shareable (e.g. biological materials, equipment) must be described in sufficient detail to allow reproducibility.

Related terms: Badges (Open Science); Credibility of scientific claims; FAIR principles; Open Access; Open Code; Open Data; Reproducibility; Transparency

Reference: Blohowiak et al. (2020); Kidwell et al. (2016)

Originally drafted by: Lisa Spitzer

Reviewed (or Edited) by: Sam Parsons; Charlotte R. Pennington; Olly Robertson; Emily A. Williams; Flávio Azevedo

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OpenNeuro [complete]

Definition: A free platform where researchers can freely and openly share, browse, download and re-use brain imaging data (e.g., MRI, MEG, EEG, iEEG, ECoG, ASL, and PET data).

Related terms: BIDS data structure; Open data; OpenfMRI

Reference(s): Poldrack et al. (2013); Poldrack and Gorgolewski (2014)

https://openneuro.org/

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Drafted by: Ali H. Al-Hoorie

Reviewed (or Edited) by: Leticia Micheli, Gisela H. Govaart

Open Peer Review [complete]

Definition: A scholarly review mechanism providing disclosure of any combination of author and referee identities, as well as peer-review reports and editorial decision letters, to one another or publicly at any point during or after the peer review or publication process. It may also refer to the removal of restrictions on who can participate in peer review and the platforms for doing so. Note that 'open peer review' has been used interchangeably to refer to any, or all, of the above practices.

Related terms: Non-anonymised peer review; Open science; PRO (peer review openness) initiative; Transparent peer review

Reference(s): Ross-Hellauer (2017)

Originally drafted by: Sonia Rishi

Reviewed (or Edited) by: Mahmoud Elsherif; Sam Parsons; Charlotte R. Pennington; Yuki Yamada; Flávio Azevedo

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Open Scholarship [complete]

Definition: 'Open scholarship' is often used synonymously with 'open science', but extends to all disciplines, drawing in those which might not traditionally identify as science-based. It reflects the idea that knowledge of all kinds should be openly shared, transparent, rigorous, reproducible, replicable, accumulative, and inclusive (allowing for all

knowledge systems). Open scholarship includes all scholarly activities that are not solely limited to research such as teaching and pedagogy.

Related terms: Bropenscience; Decolonisation; Knowledge; Open Research; Open Science

Reference(s): Tennant et al. (2019) Foundations for Open Scholarship Strategy Development https://www.researchgate.net/publication/330742805_Foundations_for_Open_Scholarship_Strategy_Development

Drafted by: Gerald Vineyard

Reviewed (or Edited) by: Mahmoud Elsherif; Zoe Flack; Sam Parsons; Charlotte R. Pennington

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Open Scholarship Knowledge Base #review needed#

Definition: The Open Scholarship Knowledge Base (OSKB) is a collaborative initiative to share knowledge on the what, why and how of open scholarship to make this knowledge easy to find and apply. Information is curated and created by the community. The OSKB is a community under the Center for Open Science (COS).

Related terms: Center for Open Science (COS), Open Educational Resources (OERs); Open scholarship; Open Science

Reference(s): www.oercommons.org/hubs/OSKB

Drafted by: Ali H. Al-Hoorie

Reviewed (or Edited) by: Mahmoud Elsherif; Samuel Guay; Tamara Kalandadze

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Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Open Science [complete]

Definition: An umbrella term reflecting the idea that scientific knowledge of all kinds, where appropriate, should be openly accessible, transparent, rigorous, reproducible, replicable, accumulative, and inclusive, all which are considered fundamental features of the scientific endeavour. Open science consists of principles and behaviors that promote transparent, credible, reproducible, and accessible science. Open science has six major aspects: open data, open methodology, open source, open access, open peer review, and open educational resources.

Related terms: Accessibility; Credibility; Open Data; Open Material; Open Peer Review; Open Research; Open Science Practices; Open Scholarship; Reproducibility crisis (aka Replicability or replication crisis); Reproducibility; Transparency

Reference(s): Abele-Brehm et al. (2019); Crüwell et al. (2019); Kathawalla et al. (2020); Syed (2019); Woelfe et al. (2011)

Drafted by: Mahmoud Elsherif

Reviewed (or Edited) by: Zoe Flack; Tamara Kalandadze; Charlotte R. Pennington; Qinyu Xiao

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Open Science Framework [complete]

Definition: A free and open source platform for researchers to organize and share their research project and to encourage collaboration. Often used as an open repository for research code, data and materials, preprints and preregistrations, while managing a more efficient workflow. Created and maintained by the Center for Open Science.

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Related terms: Archive; Center for Open Science (COS); Open Code; Open Data; Preprint; Preregistration

Reference(s): Foster and Deardorff (2017); https://osf.io/

Drafted by: William Ngiam

Reviewed (or Edited) by: Mahmoud Elsherif; Charlotte R. Pennington; Lisa Spitzer

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Open Source software [complete]

Definition: A type of computer software in which source code is released under a license that permits others to use, change, and distribute the software to anyone and for any purpose. Open source is more than openly accessible: the distribution terms of open-source software must comply with 10 specific criteria (see: https://opensource.org/osd).

Related terms: Github; Open Access; Open Code; Open Data; Open Licenses; Python; R; Repository

Reference: https://opensource.org/osd; https://www.fosteropenscience.eu/foster-taxonomy/open-source-open-science

Originally drafted by: Connor Keating

Reviewed (or Edited) by: Jamie P. Cockcroft; Helena Hartmann; Charlotte R. Pennington; Andrew J. Stewart

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Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Open washing [complete]

Definition: Open washing, termed after "greenwashing", refers to the act of claiming openness to secure perceptions of rigor or prestige associated with open practices. It has been used to characterise the marketing strategy of software companies that have the appearance of open-source and open-licensing, while engaging in proprietary practices. Open washing is a growing concern for those adopting open science practices as their actions are undermined by misleading uses of the practices, and actions designed to facilitate progressive developments are reduced to 'ticking the box' without clear quality control.

Related terms: Open Access; Open Data; Open Source

Reference: Farrow (2017); Moretti (2020); Villum (2016); Vlaeminck and Podkrajac (2017)

Originally drafted by: Meng Liu

Reviewed (or Edited) by: Thomas Rhys Evans; Sam Guay; Sam Parsons; Charlotte R. Pennington; Beatrice Valentini

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Optional Stopping [complete]

Definition: The practice of (repeatedly) analyzing data during the data collection process and deciding to stop data collection if a statistical criterion (e.g. *p*-value, or bayes factor) reaches a specified threshold. If appropriate methodological precautions are taken to control the type 1 error rate, this can be an efficient analysis procedure (e.g. Lakens, 2014). However, without transparent reporting or appropriate error control the type 1 error can

increase greatly and optional stopping could be considered a Questionable Research Practice (QRP) or a form of p-hacking.

Related terms: *P*-hacking; Questionable Research Practices or Questionable Reporting Practices (QRPs); Sequential testing

Reference(s): Beffara Bret et al. (2021); Lakens (2014); Sagarin et al. (2014); Schönbrodt et al. (2017)

Originally Drafted by: Brice Beffara Bret; Bettina M. J. Kern

Reviewed (or Edited) by: Ali H. Al-Hoorie; Helena Hartmann; Catia M. Oliveira; Sam Parsons

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ORCID (Open Researcher and Contributor ID) [complete]

Definition: A organisation that provides a registry of persistent unique identifiers (ORCID iDs) for researchers and scholars, allowing these users to link their digital research documents and other contributions to their ORCID record. This avoids the name ambiguity problem in scholarly communication. ORCID iDs provide unique, persistent identifiers connecting researchers and their scholarly work. It is free to register for an ORCID iD at https://orcid.org/register.

Related terms: Authorship; DOI (digital object identifier); Name Ambiguity Problem

Reference(s): Haak et al. (2012); https://orcid.org/

Drafted by: Martin Vasilev

Reviewed (or Edited) by: Bradley Baker; Mahmoud Elsherif; Shannon Francis; Charlotte R. Pennington; Emily A. Williams; Flávio Azevedo

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Overlay Journal [complete]

Definition: Open access electronic journals that collect and curate articles available from other sources (typically preprint servers, such as arXiv). Article curation may include (post-publication) peer review or editorial selection. Overlay journals do not publish novel material; rather, they organize and collate articles available in existing repositories.

Related terms: Open access; Preprint

Reference: Ginsparg (1997, 2001); https://discovery.ucl.ac.uk/id/eprint/19081/

Originally drafted by: Bradley Baker

Reviewed (or Edited) by: Christopher Graham; Helena Hartmann; Sam Parsons; Charlotte R. Pennington

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Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

P

P-curve [complete]

Definition: P-curve is a tool for identifying potential publication bias and makes use of the distribution of significant *p*-values in a series of independent findings. The deviation from the expected right-skewed distribution can be used to assess the existence and degree of publication bias: if the curve is right-skewed, there are more low, highly significant *p*-values, reflecting an underlying true effect. If the curve is left-skewed, there are many barely significant results just under the 0.05-threshold. This suggests that the studies lack evidential value and may be underpinned by questionable research practices (QRPs; e.g., p-hacking). In the case of no true effect present (true null hypothesis) and unbiased *p*-value reporting, the *p*-curve should be a flat, horizontal line, representing the typical distribution of *p*-values.

Related terms: File-drawer; Hypothesis; *P*-hacking; *p*-value; Publication bias (File Drawer Problem); Questionable Research Practices or Questionable Reporting Practices (QRPs); Selective reporting; Z-curve

Reference: Bruns and Ioannidis (2016); Simonsohn et al. (2014a); Simonsohn et al.(2014b); Simonsohn et al. (2019)

Originally drafted by: Bettina M. J. Kern

Reviewed (or Edited) by: Sam Guay; Kamil Izydorczak; Charlotte R. Pennington; Robert M. Ross; Olmo van den Akker

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Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

p-hacking [complete]

Definition: Exploiting techniques that may artificially increase the likelihood of obtaining a statistically significant result by meeting the standard statistical significance criterion (typically α = .05). For example, performing multiple analyses and reporting only those at $p < .05$, selectively removing data until $p < .05$, selecting variables for use in analyses based on whether those parameters are statistically significant.

Related terms: Analytic flexibility; Fishing; Garden of forking paths; HARKing; Questionable Research Practices or Questionable Reporting Practices (QRPs); Selective reporting

Reference(s): Hardwicke et al. (2014); Neuroskeptic (2012)

Drafted by: Mahmoud Elsherif

Reviewed (or Edited) by: Tamara Kalandadze; William Ngiam; Sam Parsons; Martin Vasilev

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p-value [complete]

Definition: A statistic used to evaluate the outcome of a hypothesis test in Null Hypothesis Significance Testing (NHST). It refers to the probability of observing an effect, or more extreme effect, assuming the null hypothesis is true (Lakens, 2021b). The American Statistical Association's statement on p-values (Wasserstein & Lazar, 2016) notes that p-values are not an indicator of the truth of the null hypothesis and instead defines p-values in this way: "Informally, a p-value is the probability under a specified statistical model that a statistical summary of the data (e.g., the sample mean difference between two compared groups) would be equal to or more extreme than its observed value" (p. 131).

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Related terms: Null Hypothesis Statistical Testing (NHST); statistical significance

Reference(s): https://psyteachr.github.io/glossary/p.html; Lakens (2021b); Wasserstein and Lazar (2016)

Drafted by: Alaa AlDoh; Flávio Azevedo

Reviewed (or Edited) by: Jamie P. Cockcroft; Charlotte R. Pennington; Suzanne L. K. Stewart; Robbie C.M. van Aert; Marcel A.L.M. van Assen; Martin Vasilev

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Papermill [complete]

Definition: An organization that is engaged in scientific misconduct wherein multiple papers are produced by falsifying or fabricating data, e.g. by editing figures or numerical data or plagiarizing written text. Papermills are "alleged to offer products ranging from research data through to ghostwritten fraudulent or fabricated manuscripts and submission services" (Byrne & Christopher, 2020, p. 583). A papermill relates to the fast production and dissemination of multiple allegedly new papers. These are often not detected in the scientific publishing process and therefore either never found or retracted if discovered (e.g. through plagiarism software).

Related terms: Data fabrication; Data falsification; Fraud; Plagiarism; Questionable Research Practices or Questionable Reporting Practices (QRPs); Scientific misconduct; Scientific publishing

Reference(s): Byrne and Christopher (2020); Hackett and Kelly (2020)

Originally drafted by: Helena Hartmann

Reviewed (or Edited) by: Sarah Ashcroft-Jones; Elizabeth Collins; Mahmoud Elsherif; Charlotte R. Pennington

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Paradata [complete]

Definition: Data that are captured about the characteristics and context of primary data collected from an individual - distinct from metadata. Paradata can be used to investigate a respondent's interaction with a survey or an experiment on a micro-level. They can be most easily collected during computer mediated surveys but are not limited to them. Examples include response times to survey questions, repeated patterns of responses such as choosing the same answer for all questions, contextual characteristics of the participant such as injuries that prevent good performance on tasks, the number of premature responses to stimuli in an experiment. Paradata have been used for the investigation and adjustment of measurement and sampling errors.

Related terms: Auxiliary data; Data collection; Data quality; Metadata; Process information

Reference: Kreuter (2013)

Originally drafted by: Alexander Hart; Graham Reid

Reviewed (or Edited) by: Helena Hartmann; Charlotte R. Pennington; Marta Topor; Flávio Azevedo

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PARKing [complete]

Definition: PARKing (preregistering after results are known) is defined as the practice where researchers complete an experiment (possibly with infinite

re-experimentation) before preregistering. This practice invalidates the purpose of preregistration, and is one of the QRPs (or, even scientific misconduct) that try to gain only "credibility that it has been preregistered."

Related terms: HARKing; Preregistration; Questionable Research Practices or Questionable Reporting Practices (QRPs)

Reference: Ikeda et al. (2019); Yamada (2018)

Originally drafted by: Qinyu Xiao

Reviewed (or Edited) by: Helena Hartmann; Sam Parsons; Yuki Yamada

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Participatory Research [complete]

Definition: Participatory research refers to incorporating the views of people from relevant communities in the entire research process to achieve shared goals between researchers and the communities. This approach takes a collaborative stance that seeks to reduce the power imbalance between the researcher and those researched through a "systematic cocreation of new knowledge" (Andersson, 2018).

Related terms: Collaborative research; Inclusion; Neurodiversity; Patient and Public Involvement (PPI); Transformative paradigm

Reference: Cornwall and Jewkes (1995); Fletcher-Watson et al. (2019); Kiernan (1999); Leavy (2017); Ottmann et al. (2011); Rose (2018)

Originally drafted by: Tamara Kalandadze

Reviewed (or Edited) by: Jamie P. Cockcroft; Bethan Iley; Halil E. Kocalar; Michele C. Lim

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Patient and Public Involvement (PPI) [complete]

Definition: Active research collaboration with the population of interest, as opposed to conducting research "about" them. Researchers can incorporate the lived experience and expertise of patients and the public at all stages of the research process. For example, patients can help to develop a set of research questions, review the suitability of a study design, approve plain English summaries for grant/ethics applications and dissemination, collect and analyse data, and assist with writing up a project for publication. This is becoming highly recommended and even required by funders (Boivin et al., 2018).

Related terms: Co-production; Participatory research

Reference: Boivin et al. (2018); https://www.invo.org.uk/

Originally drafted by: Jade Pickering

Reviewed (or Edited) by: Mahmoud Elsherif; Sam Parsons; Catia M. Oliveira

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Paywall [complete]

Definition: A technological barrier that permits access to information only to individuals who have paid - either personally, or via an organisation - a designated fee or subscription.

Related terms: Accessibility; Open Access

Reference: Day et al. (2020); https://casrai.org/term/closed-access/;

Originally drafted by: Bradley Baker

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Reviewed (or Edited) by: Mahmoud Elsherif; Sam Parsons; Charlotte R. Pennington; Julia Wolska

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PCI (Peer Community In) [complete]

Definition: PCI is a non-profit organisation that creates communities of researchers who review and recommend unpublished preprints based upon high-quality peer review from at least two researchers in their field. These preprints are then assigned a DOI, similarly to a journal article. PCI was developed to establish a free, transparent and public scientific publication system based on the review and recommendation of preprints.

Related terms: Open Access; Open Archives; Open Peer Review; PCI Registered Reports; Peer review; Preprints

Reference(s): https://peercommunityin.org/

Originally drafted by: Emma Henderson

Reviewed (or Edited) by: Jamie P. Cockcroft; Christopher Graham; Bethan Iley; Aleksandra Lazić; Charlotte R. Pennington

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PCI Registered Reports [complete]

Definition: An initiative launched in 2021 dedicated to receiving, reviewing, and recommending Registered Reports (RRs) across the full spectrum of Science, technology, engineering, and mathematics (STEM), medicine, social sciences and humanities. Peer Community In (PCI) RRs are overseen by a 'Recommender'

(equivalent to an Action Editor) and reviewed by at least two experts in the relevant field. It provides free and transparent pre- (Stage 1) and post-study (Stage 2) reviews across research fields. A network of PCI RR-friendly journals endorse the PCI RR review criteria and commit to accepting, without further peer review, RRs that receive a positive final recommendation from PCI RR.

Related terms: In Principle Acceptance (IPA); Open Access; PCI (Peer Community In); Publication bias (File Drawer Problem); Registered Report; Results blind; Stage 1 study review; Stage 2 study review; Transparency

Reference(s): https://rr.peercommunityin.org/about/about

Originally drafted by: Charlotte R. Pennington

Reviewed (or Edited) by: Sarah Ashcroft-Jones; Jamie P. Cockcroft; Mahmoud Elsherif; Helena Hartmann

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Plan S [complete]

Definition: Plan S is an initiative, launched in September 2018 by cOAlition S, a consortium of research funding organisations, which aims to accelerate the transition to full and immediate Open Access. Participating funders require recipients of research grants to publish their research in compliant Open Access journals or platforms, or make their work openly and immediately available in an Open Access repository, from 2021 onwards. cOAlition S funders have commited to not financially support 'hybrid' Open Access publication fees in subscription venues. However, authors can comply with plan S through publishing Open Access in a subscription

journal under a "transformative arrangement" as further described in the implementation guidance. The "S" in Plan S stands for shock.

Related terms: Open Access; DORA; Repository

Reference: https://www.coalition-s.org

Originally drafted by: Olmo van den Akker

Reviewed (or Edited) by: Jamie P. Cockcroft; Helena Hartmann; Halil E. Kocalar; Birgit Schmidt

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Positionality [complete]

Definition: The contextualization of both the research environment and the researcher, to define the boundaries within the research was produced (Jaraf, 2018). Positionality is typically centred and celebrated in qualitative research, but there have been recent calls for it to also be used in quantitative research as well. Positionality statements, whereby a researcher outlines their background and 'position' within and towards the research, have been suggested as one method of recognising and centring researcher bias.

Related terms: Bias; Reflexivity; Perspective

Reference(s): Jafar (2018); Oxford Dictionaries (2017)

Originally drafted by: Joanne McCuaig

Reviewed (or Edited) by: Helena Hartmann; Aoife O'Mahony; Madeleine Pownall; Graham Reid

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Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Positionality Map [complete]

Definition: A reflexive tool for practicing explicit positionality in critical qualitative research. The map is to be used "as a flexible starting point to guide researchers to reflect and be reflexive about their social location. The map involves three tiers: the identification of social identities (Tier 1), how these positions impact our life (Tier 2), and details that may be tied to the particularities of our social identity (Tier 3)." (Jacobson and Mustafa 2019, p. 1). The aim of the map is "for researchers to be able to better identify and understand their social locations and how they may pose challenges and aspects of ease within the qualitative research process."

Related terms: Positionality; Qualitative research; Social identity map; Transparency

Reference: Jacobson and Mustafa (2019)

Originally drafted by: Joanne McCuaig

Reviewed (or Edited) by: Helena Hartmann; Michele C. Lim; Charlotte R. Pennington; Graham Reid

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Post Hoc [complete]

Definition: Post hoc is borrowed from Latin, meaning "after this". In statistics, post hoc (or post hoc analysis) refers to the testing of hypotheses not specified prior to data analysis. In frequentist statistics, the procedure differs based on whether the analysis was planned or post-hoc, for example by applying more stringent error control. In contrast, Bayesian and likelihood approaches do not differ as a function of when the hypothesis was specified.

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Related terms: A priori, Ad hoc; HARKing; P-hacking

Reference(s): Dienes (p.166, 2008)

Drafted by: Alaa Aldoh

Reviewed (or Edited) by: Sam Parsons; Jamie P. Cockcroft; Bethan Iley; Halil E. Kocalar; Graham Reid; Flávio Azevedo

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Post Publication Peer Review #review needed#

Definition: Peer review that takes place after research has been published. It is typically posted on a dedicated platform (e.g., PubPeer). It is distinct from the traditional commentary which is published in the same journal and which is itself usually peer reviewed.

Related terms: Open Peer Review; PeerPub; Peer review

Drafted by: Ali H. Al-Hoorie

Reviewed (or Edited) by: Mahmoud Elsherif; Sam Parsons

Posterior distribution [complete]

Definition: A way to summarize one's updated knowledge in Bayesian inference, balancing prior knowledge with observed data. In statistical terms, posterior distributions are proportional to the product of the likelihood function and the prior. A posterior probability distribution captures (un)certainty about a given parameter value.

Related terms: Bayes Factor; Bayesian inference; Bayesian parameter estimation; Likelihood function; Prior distribution

Reference(s): Dienes (2014); Lüdtke et al. (2020); van de Schoot et al. (2021)

Drafted by: Alaa AlDoh

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Reviewed (or Edited) by: Adam Parker; Jamie P. Cockcroft; Julia Wolska; Yu-Fang Yang; Charlotte R. Pennington

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Predatory Publishing [complete]

Definition: Predatory (sometimes "vanity") publishing describes a range of business practices in which publishers seek to profit, primarily by collecting article processing charges (APCs), from publishing scientific works without necessarily providing legitimate quality checks (e.g., peer review) or editorial services. In its most extreme form, predatory publishers will publish any work, so long as charges are paid. Other less extreme strategies, such as sending out high numbers of unsolicited requests for editing or publishing in fee-driven special issues, have also been accused as predatory (Crosetto, 2021).

Related terms: Article Processing Charge (APC); Gaming (the system)

Reference: Crosetto (2021); Xia et al. (2015)

Originally drafted by: Nick Ballou

Reviewed (or Edited) by: Olmo van den Akker; Helena Hartmann; Aleksandra Lazić; Graham Reid; Flávio Azevedo

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PREPARE Guidelines [complete]

Definition: The PREPARE guidelines and checklist (Planning Research and Experimental Procedures on Animals: Recommendations for Excellence) aim to help the planning of animal research, and support adherence to the 3Rs (Replacement, Reduction or Refinement) and facilitate the reproducibility of animal research.

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Related terms: ARRIVE Guidelines; Reporting Guideline; STRANGE

Reference(s): Smith et al. (2018)

Drafted by: Ben Farrar

Reviewed (or Edited) by: Mahmoud Elsherif; Gilad Feldman; Elias Garcia-Pelegrin

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Preprint [complete]

Definition: A publicly available version of any type of scientific manuscript/research output preceding formal publication, considered a form of Green Open Access. Preprints are usually hosted on a repository (e.g. arXiv) that facilitates dissemination by sharing research results more quickly than through traditional publication. Preprint repositories typically provide persistent identifiers (e.g. DOIs) to preprints. Preprints can be published at any point during the research cycle, but are most commonly published upon submission (i.e., before peer-review). Accepted and peer-reviewed versions of articles are also often uploaded to preprint servers, and are called postprints.

Related terms: Open Access; DOI (digital object identifier); Postprint; Working Paper

Reference(s): Bourne et al. (2017); Elmore (2018)

Drafted by: Mariella Paul

Reviewed (or Edited) by: Gisela H. Govaart; Helena Hartmann; Sam Parsons; Tobias Wingen; Flávio Azevedo

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Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Preregistration [complete]

Definition: The practice of publishing the plan for a study, including research questions/hypotheses, research design, data analysis before the data has been collected or examined. It is also possible to preregister secondary data analyses (Merten & Krypotos, 2019). A preregistration document is time-stamped and typically registered with an independent party (e.g., a repository) so that it can be publicly shared with others (possibly after an embargo period). Preregistration provides a transparent documentation of what was planned at a certain time point, and allows third parties to assess what changes may have occurred afterwards. The more detailed a preregistration is, the better third parties can assess these changes and with that the validity of the performed analyses. Preregistration aims to clearly distinguish confirmatory from exploratory research.

Related terms: Confirmation bias; Confirmatory analyses; Exploratory Data Analysis; HARKing; Pre-analysis plan; Questionable Research Practices or Questionable Reporting Practices (QRPs); Registered Report; Research Protocol; Transparency

Reference(s): Haven and van Grootel (2019); Lewandowsky and Bishop (2016); Merten and Krypotos (2019); Navarro (2020); Nosek et al. (2018); Simmons et al. (2021)

Drafted by: Mahmoud Elsherif

Reviewed (or Edited) by: Gisela H. Govaart; Helena Hartmann; Tina Lonsdorf; William Ngiam; Eike Mark Rinke; Lisa Spitzer; Olmo van den Akker; Flávio Azevedo

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Preregistration Pledge [complete]

Definition: In a “collective action in support of open and reproducible research practices", the preregistration pledge is a campaign from the Project Free Our

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Knowledge that asks a researcher to commit to preregistering at least one study in the next two years (https://freeourknowledge.org/about/). The project is a grassroots movement initiated by early career researchers (ECRs).

Related terms: Preregistration

Reference(s): https://freeourknowledge.org/2020-12-03-preregistration-pledge/

Originally drafted by: Helena Hartmann

Reviewed (or Edited) by: Jamie P. Cockcroft; Mahmoud Elsherif; Aleksandra Lazić, Steven Verheyen

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PRO (peer review openness) initiative [complete]

Definition: The agreement made by several academics that they will not provide a peer review of a manuscript unless certain conditions are met. Specifically, the manuscript authors should ensure the data and materials will be made publically available (or give a justification as to why they are not freely available or shared), provide documentation detailing how to interpret and run any files or code and detail where these files can be located via the manuscript itself.

Related terms: Non-anonymised peer review; Open Science; Open Peer Review; Transparent peer review

Reference: Morey et al. (2016)

Originally drafted by: Jamie P. Cockcroft

Reviewed (or Edited) by: Sarah Ashcroft-Jones; Mahmoud Elsherif; Helena Hartmann; Steven Verheyen

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Prior distribution **almost done**

Definition: Beliefs held by researchers about the parameters in a statistical model before further evidence is taken into account. A 'prior' is expressed as a probability distribution and can be determined in a number of ways (e.g., previous research, subjective assessment, principles such as maximising entropy given constraints), and is typically combined with the likelihood function using Bayes' theorem to obtain a posterior distribution.

Related terms: Bayes Factor; Bayesian inference; Bayesian Parameter Estimation; Likelihood function; Posterior distribution

Reference(s): van de Schoot et al. (2021)

Drafted by: Alaa AlDoh

Reviewed (or Edited) by: Charlotte R. Pennington; Martin Vasilev

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Pseudonymisation [complete]

Definition: Pseudonymisation refers to a technique that involves replacing or removing any information that could lead to identification of research subjects' identity whilst still being able to make them identifiable through the use of the combination of code number and identifiers. This process comprises the following steps: removal of all identifiers from the research dataset; attribution of a specific identifier (pseudonym) for each participant and using it to label each research record; and maintenance of a cipher that links the code number to the participant in a document physically separate from the dataset. Pseudonymisation is typically a minimum requirement from ethical committees when conducting research, especially

on human participants or involving confidential information, in order to ensure upholding of data privacy.

Related terms: Anonymity; Confidentiality; Data privacy; De-identification; Pseudonymisation; Research ethics

Reference: Mourby et al. (2018); UKRI (https://mrc.ukri.org/documents/pdf/gdpr-guidance-note-5-identifiability-anonymisation-and-pseudonymisation/)

Originally drafted by: Catia M. Oliveira

Reviewed (or Edited) by: Helena Hartmann; Sam Parsons; Charlotte R. Pennington; Birgit Schmidt

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Pseudoreplication [complete]

Definition: When there is a lack of statistical independence presented in the data and thus artificially inflating the number of samples (i.e. replicates). For instance, collecting more than one data point from the same experimental unit (e.g. participant or crops). Numerous methods can overcome this, such as averaging across replicates (e.g., taking the mean RT for a participant) or implementing mixed effects models with the random effects structure accounting for the pseudoreplication (e.g., specifying each individual RT as belonging to the same subject). Note, the former option would be associated with a loss of information and statistical power.

Related terms: Confounding; Generalizability; Replication; Validity

Reference(s): Davies and Gray (2015); Hurlbert (1984); Lazic (2019)

Drafted by: Ben Farrar

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Reviewed (or Edited) by: Jamie P. Cockcroft; Mahmoud Elsherif; Elias Garcia-Pelegrin; Annalise A. LaPlume

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Psychometric meta-analysis [complete]

Definition: Psychometric meta-analyses aim to correct for attenuation of the effect sizes of interest due to measurement error and other artifacts by using procedures based on psychometric principles, e.g. reliability of the measures. These procedures should be implemented before using the synthesised effect sizes in correlational or experimental meta-analysis, as making these corrections tends to lead to larger and less variable effect sizes.

Related terms: Correlational meta-analysis; Hunter-Schmidt meta-analysis; Meta-analysis; Non-Intervention, Reproducible, and Open Systematic Reviews (NIRO-SR); Publication bias (File Drawer Problem); Validity generalization

Reference(s): Borenstein et al. (2009); Schmidt and Hunter (2014)

Drafted by: Adrien Fillon

Reviewed (or Edited) by: Mahmoud Elsherif; Eduardo Garcia-Garzon; Helena Hartmann; Catia M. Oliveira; Flávio Azevedo

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Publication bias (File Drawer Problem) [complete]

Definition: The failure to publish results based on the "direction or strength of the study findings" (Dickersin & Min, 1993, p. 135). The bias arises when the evaluation of a study's publishability disproportionately hinges on the outcome of the study, often with the inclination that novel and significant results are worth publishing more than replications and

null results. This bias typically materializes through a disproportionate number of significant findings and inflated effect sizes. This process leads to the published scientific literature not being representative of the full extent of all research, and specifically underrepresents null finding. Such findings, in turn, land in the so called "file drawer", where they are never published and have no findable documentation.

Related terms: Dissemination bias; P-curve; P-hacking; Selective reporting; Statistical significance; Trim and fill

Alternative definition: In the context of meta-analysis, publication bias "...occurs whenever the research that appears in the published literature is systematically unrepresentative of the population of completed studies. Simply put, when the research that is readily available differs in its results from the results of all the research that has been done in an area, readers and reviewers of that research are in danger of drawing the wrong conclusion about what that body of research shows." (Rothstein et al., 2005, p. 1)

Related terms to alternative definition: meta-analysis

Reference(s): Dickersin and Min (1993); Devito and Goldacre (2019); Duval and Tweedie (2000a, 2000b); Franco et al. (2014); Lindsay (2020); Rothstein et al. (2005)

Drafted by: Mahmoud Elsherif

Reviewed (or Edited) by: Jamie P. Cockcroft; Gilad Feldman; Adrien Fillon; Helena Hartmann; Tamara Kalandadze; William Ngiam; Martin Vasilev; Olmo van den Akker; Flávio Azevedo

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Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Public Trust in Science [complete]

Definition: Trust in the knowledge, guidelines and recommendations that has been produced or provided by scientists to the benefit of civil society (Hendriks et al., 2016). These may also refer to trust in scientific-based recommendations on public health (e.g., universal health-care, stem cell research, federal funds for women's reproductive rights, preventive measures of contagious diseases, and vaccination), climate change, economic policies (e.g., welfare, inequality- and poverty-control) and their intersections. The trust a member of the public has in science has been shown to be influenced by a vast number of factors such as age (Anderson et al., 2012), gender (Von Roten, 2004), rejection of scientific norms (Lewandowsky & Oberauer, 2021), political ideology (Azevedo & Jost, 2021; Brewer & Ley, 2012; Leiserowitz et al., 2010), right-wing authoritarianism and social dominance (Kerr & Wilson, 2021), education (Bak, 2001; Hayes & Tariq, 2000), income (Anderson et al., 2012), science knowledge (Evans & Durant, 1995; Nisbet et al., 2002), social media use (Huber et al., 2019), and religiosity (Azevedo, 2021; Brewer & Ley, 2013; Liu & Priest, 2009).

Related terms: Credibility of scientific claims; Epistemic Trust

Reference(s): Anderson et al. (2012); Azevedo (2021); Azevedo and Jost (2021); Bak (2001); Brewer and Ley (2013); Evans and Durant (1995); Hayes and Tariq (2000); Hendriks et al. (2016); Huber et al. (2019); Kerr and Wilson (2021); Lewandowsky and Oberauer (2021); Liu and Priest (2009); Nisbet et al. (2002); Schneider et al., (2019); Wingen et al. (2020)

Originally drafted by: Tobias Wingen; Flávio Azevedo

Reviewed (or Edited) by: Elias Garcia-Pelegrin; Helena Hartmann; Catia M. Oliveira; Olmo van den Akker

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Publish or Perish [complete]

Definition: An aphorism describing the pressure researchers feel to publish academic manuscripts, often in high prestige academic journals, in order to have a successful academic career. This pressure to publish a high quantity of manuscripts can go at the expense of the quality of the manuscripts. This institutional pressure is exacerbated by hiring procedures and funding decisions strongly focusing on the number and impact of publications.

Related terms: Incentive structure; Journal Impact Factor; Reproducibility crisis (aka Replicability or replication crisis); Salami slicing; Slow Science

Reference(s): Case (1928); Fanelli (2010)

Drafted by: Eliza Woodward

Reviewed (or Edited) by: Nick Ballou; Mahmoud Elsherif; Helena Hartmann; Annalise A. LaPlume; Sam Parsons; Timo Roettger; Olmo van den Akker

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PubPeer #review needed#

Definition: A website that allows users to post anonymous peer reviews of research that has been published (i.e. post-publication peer review).

Related terms: Open Peer Review

Reference(s): www.pubpeer.com

Drafted by: Ali H. Al-Hoorie

Reviewed (or Edited) by: Mahmoud ELsherif

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Python [complete]

Definition: An interpreted general-purpose programming language, intended to be user-friendly and easily readable, originally created by Guido van Rossum in 1991. Python has an extensive library of additional features with accessible documentation for tasks ranging from data analysis to experiment creation. It is a popular programming language in data science, machine learning and web development. Similar to R Markdown, Python can be presented in an interactive online format called a Jupyter notebook, combining code, data, and text.

Related terms: Jupyter; Matplotlib; NumPy; OpenSesame; PsychoPy; R

Reference: Lutz (2001)

Originally drafted by: Shannon Francis

Reviewed (or Edited) by: James E. Bartlett; Alexander Hart; Helena Hartmann; Dominik Kiersz; Graham Reid; Andrew J. Stewart

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Q

Qualitative research [complete]

Definition: Research which uses non-numerical data, such as textual responses, images, videos or other artefacts, to explore in-depth concepts, theories, or experiences. There are a wide range of qualitative approaches, from micro-detailed exploration of language or focusing on personal subjective experiences, to those which explore macro-level social experiences and opinions.

Related terms: Bracketing Interviews; Positionality; Quantitative research; Reflexivity

Alternative definition: (if applicable) In Psychology, the **epistemology** of qualitative research is typically concerned with understanding people's perspectives. Such epistemology proposes assuming the equity of researchers and participants as human beings, and in consequence, the need of sympathetic human understanding instead of data-driven conclusions

Reference(s): Aspers and Corte (2019); Levitt et al. (2017)

Drafted by: Madeleine Pownall

Reviewed (or Edited) by: Mahmoud Elsherif; Helena Hartmann; Oscar Lecuona; Claire Melia; Flávio Azevedo

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Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Quantitative research #review needed#

Definition: Quantitative research encompasses a diverse range of methods to systematically investigate a range of phenomena via the use of numerical data which can be analysed with statistics.

Related terms: Measuring; Qualitative research; Sample size; Statistical power; Statistics

Reference(s): Goertzen (2017)

Drafted by: Aoife O'Mahony

Reviewed (or Edited) by: Valeria Agostini; Tamara Kalandadze; Adam Parker

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Questionable Research Practices or Questionable Reporting Practices (QRPs) [complete]

Definition: A range of activities that intentionally or unintentionally distort data in favour of a researcher's own hypotheses - or omissions in reporting such practices - including; selective inclusion of data, hypothesising after the results are known (HARKing), and *p*-hacking. Popularized by John et al. (2012).

Related terms: Creative use of outliers; Fabrication; File-drawer; Garden of forking paths; HARKing; Nonpublication of data; *P*-hacking; *P*-value fishing; Partial publication of data; Post-hoc storytelling; Preregistration; Questionable Measurement Practices (QMP); Researcher degrees of freedom; Reverse *p*-hacking; Salami slicing

Reference(s): Banks et al. (2016); Fiedler and Schwartz (2016); Hardwicke et al. (2014); John et al. (2012); Neuroskeptic (2012); Sijtsma (2016); Simonsohn et al. (2011)

Drafted by: Mahmoud Elsherif

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Reviewed (or Edited) by: Tamara Kalandadze; William Ngiam; Sam Parsons; Mariella Paul; Eike Mark Rinke; Timo Roettger; Flávio Azevedo

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Questionable Measurement Practices (QMP) [complete]

Definition: Decisions researchers make that raise doubts about the validity of measures used in a study, and ultimately the study's final conclusions (Flake & Fried, 2020). Issues arise from a lack of transparency in reporting measurement practices, a failure to address construct validity, negligence, ignorance, or deliberate misrepresentation of information.

Related terms: Construct validity; Measurement schmeasurement; *P*-hacking; Psychometrics; Questionable Research Practices or Questionable Reporting Practices (QRPs); Validity

Reference: Flake and Fried (2020)

Originally drafted by: Halil Emre Kocalar

Reviewed (or Edited) by: Jamie P. Cockcroft; Annalise A. LaPlume; Sam Parsons; Mirela Zaneva; Flávio Azevedo

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R

R [complete]

Definition: R is a free, open-source programming language and software environment that can be used to conduct statistical analyses and plot data. R was created by Ross Ihaka and Robert Gentleman at the University of Auckland. R enables authors to share reproducible analysis scripts, which increases the transparency of a study. Often, R is used in conjunction with an integrated development environment (IDE) which simplifies working with the language, for example RStudio or Visual Studio Code, or Tinn-R .

Related terms: Open-source; Statistical analysis

Reference: https://www.r-project.org/; R Core Team (2020)

Originally drafted by: Lisa Spitzer

Reviewed (or Edited) by: Bradley Baker; Alexander Hart; Joanne McCuaig; Andrew J. Stewart

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Red Teams [complete]

Definition: An approach that integrates external criticism by colleagues and peers into the research process. Red teams are based on the idea that research that is more critically and widely evaluated is more reliable. The term originates from a military practice: One group (the red team) attacks something, and another group (the blue team) defends it. The practice has been applied to open science, by giving a red team

(designated critical individuals) financial incentives to find errors in or identify improvements to the materials or content of a research project (in the materials, code, writing, etc.; Coles et al., 2020).

Related terms: Adversarial collaboration

Reference: Coles et al. (2020); Lakens (2020)

Originally drafted by: Annalise A. LaPlume

Reviewed (or Edited) by: Nick Ballou; Mahmoud Elsherif**;** Thomas Rhys Evans; Helena Hartmann; Timo Roettger

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Reflexivity [complete]

Definition: The process of reflexivity refers to critically considering the knowledge that we produce through research, how it is produced, and our own role as researchers in producing this knowledge. There are different forms of reflexivity; personal reflexivity whereby researchers consider the impact of their own personal experiences, and functional whereby researchers consider the way in which our research tools and methods may have impacted knowledge production. Reflexivity aims to bring attention to underlying factors which may impact the research process, including development of research questions, data collection, and the analysis.

Related terms: Bracketing Interviews; Qualitative Research

Reference(s): Braun and Clarke (2013); Finlay and Gough (2008)

Drafted by: Claire Melia

Reviewed (or Edited) by: Gilad Feldman; Annalise A. LaPlume

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Registered Report [complete]

Definition: A scientific publishing format that includes an initial round of peer review of the background and methods (study design, measurement, and analysis plan); sufficiently high quality manuscripts are accepted for in-principle acceptance (IPA) at this stage. Typically, this stage 1 review occurs before data collection, however secondary data analyses are possible in this publishing format. Following data analyses and write up of results and discussion sections, the stage 2 review assesses whether authors sufficiently followed their study plan and reported deviations from it (and remains indifferent to the results). This shifts the focus of the review to the study's proposed research question and methodology and away from the perceived interest in the study's results.

Related terms: Preregistration; Publication bias (File Drawer Problem); Results-free review; PCI (Peer Community In); Research Protocol

Reference(s): Chambers (2013); Chambers et al. (2015); Chambers and Tzavella (2020); Findley et al. (2016); https://www.cos.io/initiatives/registered-reports

Drafted by: Madeleine Pownall

Reviewed (or Edited) by: Gilad Feldman; Emma Henderson; Aoife O'Mahony; Sam Parsons; Mariella Paul; Charlotte R. Pennington; Eike Mark Rinke; Timo Roettger; Olmo van den Akker; Yuki Yamada; Flávio Azevedo

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Registry of Research Data Repositories [complete]

Definition: A global registry of research data repositories from different academic disciplines. It includes repositories that enable permanent storage of, description via

metadata and access to, data sets by researchers, funding bodies, publishers, and scholarly institutions.

Related terms: Metadata; Open Access; Open Data; Open Material; Repository

Reference: https://www.re3data.org/ - Registry of Research Data Repositories.

Originally drafted by: Aleksandra Lazić

Reviewed (or Edited) by: Mahmoud Elsherif; Sam Parsons; Charlotte R. Pennington; Helena Hartmann

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Reliability [complete]

Definition: The extent to which repeated measurements lead to the same results. In psychometrics, reliability refers to the extent to which respondents have similar scores when they take a questionnaire on multiple occasions. Noteworthy, reliability does not imply validity. Furthermore, additional types of reliability besides internal consistency exist, including: test-retest reliability, parallel forms reliability and interrater reliability.

Related terms: Consistency; Internal consistency; Quality Criteria; Replicability; Reproducibility; Validity

Reference: Bollen (1989); Drost (2011)

Originally drafted by: Annalise A. LaPlume

Reviewed (or Edited) by: Mahmoud Elsherif**;** Eduardo Garcia-Garzon; Kai Krautter; Olmo van den Akker

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Repeatability [complete]

Definition: Synonymous with *test-retest reliability*. It refers to the agreement between the results of successive measurements of the same measure. Repeatability requires the same experimental tools, the same observer, the same measuring instrument administered under the same conditions, the same location, repetition over a short period of time, and the same objectives (Joint Committee for Guidelines in Metrology, 2008)

Related terms: Reliability

Reference(s): ISO (1993); Stodden (2011)

Drafted by: Mahmoud Elsherif, Adam Parker

Reviewed (or Edited) by: Gilad Feldman; Helena Hartmann; Joanne McCuaig; Sam Parsons

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Replicability [complete]

Definition: An umbrella term, used differently across fields, covering concepts of: direct and conceptual replication, computational reproducibility/replicability, generalizability analysis and robustness analyses. Some of the definitions used previously include: a different team arriving at the same results using the original author's artifacts (Barba 2018); a study arriving at the same conclusion after collecting new data (Claerbout and Karrenbach, 1992); as well as studies for which any outcome would be considered diagnostic evidence about a claim from prior research (Nosek & Errington, 2020).

Related terms: Conceptual replication; Direct Replication; Generalizability; Reproducibility; Reliability; Robustness (analyses)

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Reference(s): Barba (2018); Crüwell et al. (2019); King (1996); National Academies of Sciences et al. (2011); Nosek and Errington (2020)

Drafted by: Mahmoud Elsherif

Reviewed (or Edited) by: Jamie P. Cockcroft; Adrien Fillon; Gilad Feldman; Annalise A. LaPlume; Tina B. Lonsdorf; Sam Parsons; Eike Mark Rinke; Tobias Wingen

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Replication Markets **almost complete**

Definition: A replication market is an environment where users bet on the replicability of certain effects. Forecasters are incentivized to make accurate predictions and the top successful forecasters receive monetary compensation or contributorship for their bets. The rationale behind a replication market is that it leverages the collective wisdom of the scientific community to predict which effect will most likely replicate, thus encouraging researchers to channel their limited resources to replicating these effects.

Related terms: Citizen science; Crowdsourcing; Replicability; Reproducibility

Reference: Liu et al. (2020); Tierney et al. (2020); Tierney et al. (2021); www.replicationmarkets.com

Originally drafted by: Ali H. Al-Hoorie

Reviewed (or Edited) by: Mahmoud Elsherif; Leticia Micheli; Sam Parsons

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Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Reporting Guideline [complete]

Definition: A reporting guideline is a "checklist, flow diagram, or structured text to guide authors in reporting a specific type of research, developed using explicit methodology." (EQUATOR Network, n.d.). Reporting guidelines provide the minimum guidance required to ensure that research findings can be appropriately interpreted, appraised, synthesized and replicated. Their use often differs per scientific journal or publisher.

Related terms: CONSORT; Non-Intervention, Reproducible, and Open Systematic Reviews (NIRO-SR); PRISMA; STROBE

Reference: Moher et al. (2009) Schulz et al. (2010); Torpor et al. (2021); Von Elm et al. (2007);

https://www.equator-network.org/about-us/what-is-a-reporting-guideline/

Originally drafted by: Aidan Cashin

Reviewed (or Edited) by: Gilad Feldman; Helena Hartmann; Joanne McCuaig

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Repository [complete]

Definition: An online archive for the storage of digital objects including research outputs, manuscripts, analysis code and/or data. Examples include preprint servers such as bioRxiv, MetaArXiv, PsyArXiv, institutional research repositories, as well as data repositories that collect and store datasets including zenodo.org, PsychData, and code repositories such as Github, or more general repositories for all kinds of research data, such as the Open Science Framework (OSF). Digital objects stored in

repositories are typically described through metadata which enables discovery across different storage locations.

Related terms: Data sharing; Github; Metadata; Open Access; Open data; Open Material; Open Science Framework; Open Source; Preprint

Reference(s): https://www.nature.com/sdata/policies/repositories

Originally drafted by: Tina Lonsdorf

Reviewed (or Edited) by: Gilad Feldman; Connor Keating; Mariella Paul; Charlotte R. Pennington; Flávio Azevedo

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ReproducibiliTea [complete]

Definition: A grassroots initiative that helps researchers create local journal clubs at their universities to discuss a range of topics relating to open research and scholarship. Each meeting usually centres around a specific paper that discusses, for example, reproducibility, research practice, research quality, social justice and inclusion, and ideas for improving science.

Related terms: Grassroots initiative; Journal club; Open science; Reproducibility

Reference: https://reproducibilitea.org/; Orben (2019)

Originally drafted by: Emma Norris

Reviewed (or Edited) by: Mahmoud Elsherif; Gilad Feldman; Connor Keating; Charlotte R. Pennington; Sam Parsons; Flávio Azevedo

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Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Reproducibility [complete]

Definition: A minimum standard on a spectrum of activities ("reproducibility spectrum") for assessing the value or accuracy of scientific claims based on the original methods, data, and code. For instance, where the original researcher's data and computer codes are used to regenerate the results (Barba, 2018), often referred to as computational reproducibility. Reproducibility does not guarantee the quality, correctness, or validity of the published results (Peng, 2011). In some fields, this meaning is, instead, associated with the term “replicability” or ‘repeatability’.

Related terms: Computational reproducibility; Replicability; repeatability

Reference(s): Barba (2018); Cruwell et al. (2019); Peng (2011), Stodden (2011); Syed (2019); National Academies of Sciences, Engineering, and Medicine (2019)

Drafted by: Mahmoud Elsherif

Reviewed (or Edited) by: Helena Hartmann; Annalise A. LaPlume; Tina B. Lonsdorf; Sam Parsons; Charlotte R. Pennington; Suzanne L. K. Stewart

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Reproducibility crisis (aka Replicability or replication crisis) [complete]

Definition: The finding, and related shift in academic culture and thinking, that a large proportion of scientific studies published across disciplines do not replicate (e.g. Open Science Collaboration, 2015). This is considered to be due to a lack of quality and integrity of research and publication practices, such as publication bias, QRPs and a lack of transparency, leading to an inflated rate of false positive results. Others have described this process as a ‘Credibility revolution’ towards improving these practices.

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Related terms: Credibility crisis; Publication bias (File Drawer Problem); Questionable Research Practices or Questionable Reporting Practices (QRPs); Replicability; Reproducibility

Reference(s): Fanelli (2018); Open Science Collaboration (2015)

Drafted by: Mahmoud Elsherif

Reviewed (or Edited) by: Helena Hartmann; Annalise A. LaPlume; Mariella Paul; Sonia Rishi; Lisa Spitzer

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Reproducibility Network [complete]

Definition: A reproducibility network is a consortium of open research working groups, often peer-led. The groups operate on a wheel-and-spoke model across a particular country, in which the network connects local cross-disciplinary researchers, groups, and institutions with a central steering group, who also connect with external stakeholders in the research ecosystem. The goals of reproducibility networks include; advocating for greater awareness, promoting training activities, and disseminating best-practices at grassroots, institutional, and research ecosystem levels. Such networks exist in the UK, Germany, Switzerland, Slovakia, and Australia (as of March 2021).

Reference: https://www.ukrn.org/ ; https://reproducibilitynetwork.de/; https://www.swissrn.org/; https://slovakrn.wixsite.com/skrn; https://www.aus-rn.org/

Originally drafted by: Suzanne L. K. Stewart

Reviewed (or Edited) by: Annalise A. LaPlume; Sam Parsons; Flávio Azevedo

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Research Contribution Metric (*p*) [almost done]

Definition: Type of semantometric measure assessing similarity of publications connected in a citation network. This method uses a simple formula to assess authors' contributions. Publication *p* can be estimated based on the semantic distance from the publications cited by *p* to publications citing *p*.

Related terms: Semantometrics

Reference: Knoth and Herrmannova (2014); Holcombe (2019); Larivière et al. (2016)

Originally drafted by: Alaa AlDoh

Reviewed (or Edited) by: Michele C. Lim; Jamie P. Cockcroft; Micah Vandegrift; Dominik Kiersz

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Research Cycle [complete]

Definition: Describes the circular process of conducting scientific research, with "researchers working at various stages of inquiry, from more tentative and exploratory investigations to the testing of more definitive and well-supported claims" (Lieberman, 2020, p. 42). The cycle includes literature research and hypothesis generation, data collection and analysis, as well as dissemination of results (e.g. through publication in peer-reviewed journals), which again informs theory and new hypotheses/research.

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Related terms: Research process

Reference(s): Bramoullé and Saint Paul (2010); Lieberman (2020)

Originally drafted by: Helena Hartmann

Reviewed (or Edited) by: Jamie P. Cockcroft; Aleksandra Lazić; Graham Reid; Beatrice Valentini

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Research Data Management [complete]

Definition: Research Data Management (RDM) is a broad concept that includes processes undertaken to create organized, documented, accessible, and reusable quality research data. Adequate research data management provides many benefits including, but not limited to, reduced likelihood of data loss, greater visibility and collaborations due to data sharing, demonstration of research integrity and accountability.

Related terms: Data curation; Data documentation; Data management plan (DMP); Data sharing; Metadata; Research data management

Reference(s): CESSDA; Corti et al. (2019)

Drafted by: Micah Vandegrift

Reviewed (or Edited) by: Helena Hartmann; Tina B. Lonsdorf; Catia M. Oliveira; Julia Wolska

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Research integrity [complete]

Definition: Research integrity is defined by a set of good research practices based on fundamental principles: honesty, reliability, respect and accountability (ALLEA, 2017). Good research practices —which are based on fundamental principles of research integrity and

should guide researchers in their work as well as in their engagement with the practical, ethical and intellectual challenges inherent in research— refer to areas such as: research environment (e.g., research institutions and organisations promote awareness and ensure a prevailing culture of research integrity), training, supervision and mentoring (e.g., Research institutions and organisations develop appropriate and adequate training in ethics and research integrity to ensure that all concerned are made aware of the relevant codes and regulations), research procedures (e.g., researchers report their results in a way that is compatible with the standards of the discipline and, where applicable, can be verified and reproduced), safeguards (e.g., researchers have due regard for the health, safety and welfare of the community, of collaborators and others connected with their research), data practices and management (e.g., researchers, research institutions and organisations provide transparency about how to access or make use of their data and research materials), collaborative working, publication and dissemination (e.g., authors and publishers consider negative results to be as valid as positive findings for publication and dissemination), reviewing, evaluating and editing (e.g., researchers review and evaluate submissions for publication, funding, appointment, promotion or reward in a transparent and justifiable manner).

Related terms: Credibility of scientific claims; Error detection; Ethics; Open research; Questionable Research Practices or Questionable Reporting Practices (QRPs); Responsible Research Practices; Rigour; Transparency; Trustworthy research

Reference(s): ALLEA (2017); Medin (2012); Moher et al. (2020)

Drafted by: Ana Barbosa Mendes; Flávio Azevedo

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Reviewed (or Edited) by: Valeria Agostini; Bradley Baker; Gilad Feldman; Tamara Kalandadze; Charlotte R. Pennington

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Research Protocol [complete]

Definition: A detailed document prepared before conducting a study, often written as part of ethics and funding applications. The protocol should include information relating to the background, rationale and aims of the study, as well as hypotheses which reflect the researchers' expectations. The protocol should also provide a "recipe" for conducting the study, including methodological details and clear analysis plans. Best practice guidelines for creating a study protocol should be used for specific methodologies and fields. It is possible to publically share research protocols to attract new collaborators or facilitate efficient collaboration across labs (e.g. https://www.protocols.io/). In medical and educational fields, protocols are often a separate article type suitable for publication in journals. Where protocol sharing or publication is not common practice, researchers can choose preregistration.

Related terms: Many Labs; Preregistration

Reference: BMJ (2015); Nosek et al. (2018)

Originally drafted by: Marta Topor

Reviewed (or Edited) by: Helena Hartmann; Bethan Iley; Annalise A. LaPlume; Charlotte Pennington

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Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Research workflow [complete]

Definition: The process of conducting research from conceptualisation to dissemination. A typical workflow may look like the following: Starting with conceptualisation to identify a research question and design a study. After study design, researchers need to gain ethical approval (if necessary) and may decide to preregister the final version. Researchers then collect and analyse their data. Finally, the process ends with dissemination; moving between pre-print and post-print stages as the manuscript is submitted to a journal.

Related terms: Open Research Workflow; Research cycle; Research pipeline

Reference(s): Kathawalla et al. (2021); Stodden (2011)

Drafted by: James E Bartlett

Reviewed (or Edited) by: Gilad Feldman; Helena Hartmann; Aleksandra Lazić; Joanne McCuaig; Timo Roettger; Sam Parsons; Steven Verheyen

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Researcher degrees of freedom [complete]

Definition: refers to the flexibility often inherent in the scientific process, from hypothesis generation, designing and conducting a research study to processing the data and analyzing as well as interpreting and reporting results. Due to a lack of precisely defined theories and/or empirical evidence, multiple decisions are often equally justifiable. The term is sometimes used to refer to the opportunistic (ab-)use of this flexibility aiming to achieve desired results —e.g., when in- or excluding certain data— albeit the fact that technically the term is not inherently value-laden.

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Related terms: Analytic Flexibility; Garden of forking paths; Model uncertainty; Multiverse analysis; *P*-hacking; Robustness (analyses); Specification curve analysis

Reference: Gelman and Loken (2013); Simmons et al. (2011); Wicherts et al. (2016)

Originally drafted by: Tina Lonsdorf

Reviewed (or Edited) by: Gilad Feldman; Helena Hartmann; Timo Roettger; Robbie C.M. van Aert; Flávio Azevedo

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RepliCATs project [complete]

Definition: Collaborative Assessment for Trustworthy Science. The repliCATS project's aim is to crowdsource predictions about the reliability and replicability of published research in eight social science fields: business research, criminology, economics, education, political science, psychology, public administration, and sociology.

Related terms: Replicability; Trustworthiness

Reference: Fraser et al.(2021); https://replicats.research.unimelb.edu.au/

Originally drafted by: Tamara Kalandadze

Reviewed (or Edited) by: Sarah Ashcroft-Jones; Mahmoud Elsherif; Gilad Feldman; Helena Hartmann; Charlotte R. Pennington

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Responsible Research and Innovation [complete]

Definition: An approach that considers societal implications and expectations, relating to research and innovation, with the aim to foster inclusivity and sustainability. It

accounts for the fact that scientific endeavours are not isolated from their wider effects and that research is motivated by factors beyond the pursuit of knowledge. As such, many parties are important in fostering responsible research, including funding bodies, research teams, stakeholders, activists, and members of the public.

Related terms: Citizen Science; Public Engagement; Transdisciplinary Research

Reference(s): European Commission (2021)

Drafted by: Ana Barbosa Mendes

Reviewed (or Edited) by: Helena Hartmann; Joanne McCuaig; Sam Parsons; Graham Reid

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Reverse p-hacking [complete]

Definition: Exploiting researcher degrees of freedom during statistical analysis in order to increase the likelihood of accepting the null hypothesis (for instance, $p > .05$).

Related terms: Analytic flexibility; HARKing; P-hacking; Questionable Research Practices or Questionable Reporting Practices (QRPs); Researcher degrees of freedom; Selective reporting

Reference: Chuard et al. (2019)

Originally drafted by: Robert M. Ross

Reviewed (or Edited) by: Mahmoud Elsherif; Alexander Hart; Sam Parsons; Timo Roettger

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Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

RIOT Science Club [complete]

Definition: The RIOT Science Club is a multi-site seminar series that raises awareness and provides training in Reproducible, Interpretable, Open & Transparent science practices. It provides regular talks, workshops and conferences, all of which are openly available and rewatchable on the respective location's websites and Youtube.

Related terms: Early career researchers (ECRs); Interpretability; Openness; Reproducibility; Transparency

Reference: http://riotscience.co.uk/

Originally drafted by: Tamara Kalandadze

Reviewed (or Edited) by: Helena Hartmann; Emma Henderson; Joanne McCuaig; Flávio Azevedo

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Robustness (analyses) [complete]

Definition: The persistence of support for a hypothesis under perturbations of the methodological/analytical pipeline In other words, applying different methods/analysis pipelines to examine if the same conclusion is supported under analytical different conditions.

Related terms: Many Labs; Multiverse analysis; Sensitivity analyses; Specification Curve Analysis

Alternative definition: "Robustness refers to the stability of experimental conclusions to variations in either baseline assumptions or experimental procedures. It is somewhat related to the concept of generalizability (also known as transportability), which

refers to the persistence of an effect in settings different from and outside of an experimental framework [...] Whether a study design is similar enough to the original to be considered a replication, a "robustness test," or some of many variations of pure replication that have been identified, particularly in the social sciences (for example, conceptual replication, pseudoreplication), is an unsettled question" (Goodman et al., 2016).

Reference(s): Goodman et al. (2016) (alternative); Nosek and Errington (2020)

Drafted by: Tina Lonsdorf; Flávio Azevedo

Reviewed (or Edited) by: Gilad Feldman; Adrien Fillon; Helena Hartmann; Timo Roettger

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S

Salami slicing [complete]

Definition: A questionable research/reporting practice strategy, often done *post hoc*, to increase the number of publishable manuscripts by 'slicing' up the data from a single study - one example of a method of 'gaming the system' of academic incentives. For instance, this may involve publishing multiple studies based on a single dataset, or publishing multiple studies from different data collection sites without transparently stating where the data originally derives from. Such practices distort the literature, and particularly meta-analyses,

because it is unclear that the findings were obtained from the same dataset, thereby concealing the dependencies across the separately published papers.

Related terms: Gaming (the system); Questionable Research Practices or Questionable Reporting Practices (QRPs); Partial publication

Reference(s): Fanelli (2018)

Drafted by: Mahmoud Elsherif

Reviewed (or Edited) by: Sarah Ashcroft-Jones; Adrien Fillon; Helena Hartmann; Matt Jaquiery; Tamara Kalandadze; Charlotte R. Pennington; Graham Reid; Suzanne L. K. Stewart

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Scooping [complete]

Definition: The act of reporting or publishing a novel finding prior to another researcher/team. Survey-based research indicates that fear of being scooped is an important fear-related barrier for data sharing in psychology, and agent-based models suggest that competition for priority harms scientific reliability (Tiokhin et al. 2021).

Related terms: Novelty; Open data; Preregistration

Reference(s): Houtkoop et al. (2018); Laine (2017); Tiokhin et al. (2021)

Drafted by: William Ngiam

Reviewed (or Edited) by: Ashley Blake; Thomas Rhys Evans; Connor Keating; Graham Reid; Timo Roettger; Robert M. Ross; Flávio Azevedo

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Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Semantometrics **almost done**

Definition: A class of metrics for evaluating research using full publication text to measure semantic similarity of publications and highlighting an article's contribution to the progress of scholarly discussion. It is an extension of tools such as bibliometrics, webometrics, and altmetrics.

Related terms: Bibliometrics; Contribution(p)

Reference: Herrmannova and Knoth (2016); Knoth and Herrmannova (2014)

Originally drafted by: Alaa AlDoh

Reviewed (or Edited) by: Jamie P. Cockcroft; Mahmoud Elsherif; Christopher Graham; Charlotte R. Pennington

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Sensitive research [complete]

Definition: Research that poses a threat to those who are or have been involved in it, including the researchers, the participants, and the wider society. This threat can be physical danger (e.g. suicide) or a negative emotional response (e.g. depression) to those who are involved in the research process. For instance, research conducted on victims of suicide, the researcher might be emotionally traumatised by the descriptions of the suicidal behaviours. Indeed, the communication with the victims might also make them re-experience the traumatic memories, leading to negative psychological responses.

Related terms: Anonymity

Reference: Lee (1993); Albayrak-Aydemir (2019)

Originally drafted by: Nihan Albayrak-Aydemir

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Reviewed (or Edited) by: Valeria Agostini; Mahmoud Elsherif; Helena Hartmann; Graham Reid

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Sequence-determines-credit approach (SDC) **almost done**

Definition: An authorship system that assigns authorship order based on the contribution of each author. The names of the authors are listed according to their contribution in descending order with the most contributing author first and the least contributing author last.

Related terms: Authorship; First-last-author-emphasis norm (FLAE)

Reference: Schmidt (1987); Tscharntke et al. (2007)

Originally drafted by: Myriam A. Baum

Reviewed (or Edited) by: Sam Parsons; Charlotte R. Pennington

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Sherpa Romeo [complete]

Definition: An online resource that collects and presents open access policies from publishers, from across the world, providing summaries of individual journal's copyright and open access archiving policies.

Related terms: Embargo period; Open access; Paywall; Preprint; Repository

Reference: https://v2.sherpa.ac.uk/romeo/

Originally drafted by: Aleksandra Lazić

Reviewed (or Edited) by: Mahmoud Elsherif; Christopher Graham; Sam Parsons; Martin Vasilev

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Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Single-blind peer review [complete]

Definition: Evaluation of research products by qualified experts where the reviewer(s) knows the identity of the author(s), but the reviewer(s) remains anonymous to the author(s).

Related terms: Anonymous review; Double-blind peer review; Masked review; Open Peer Review; Peer review; Triple-blind peer review

Reference: Largent and Snodgrass (2016)

Originally drafted by: Bradley Baker

Reviewed (or Edited) by: Ashley Blake; Christopher Graham; Helena Hartmann; Graham Reid

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Slow science [complete]

Definition: Adopting Open Scholarship practices leads to a longer research process overall, with more focus on transparency, reproducibility, replicability and quality, over the quantity of outputs. Slow Science opposes publish-or-perish culture and describes an academic system that allows time and resources to produce fewer higher-quality and transparent outputs, for instance prioritising researcher time towards collecting more data, more time to read the literature, think about how their findings fit the literature and documenting and sharing research materials instead of running additional studies.

Related terms: collaboration; Incentive structure; Publish or Perish; research culture; research quality

Reference(s): http://slow-science.org/; Nelson et al., (2012); Frith (2020)

Drafted by: Sonia Rishi

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Reviewed (or Edited) by: Adrien Fillon; Tamara Kalandadze; Sam Parsons Charlotte R. Pennington; Robert M Ross; Timo Roettger

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Society for Open, Reliable, and Transparent Ecology and Evolutionary biology (SORTEE) [complete]

Definition:SORTEE (https://www.sortee.org/) is an international society with the aim of improving the transparency and reliability of research results in the fields of ecology, evolution, and related disciplines through cultural and institutional changes. SORTEE was launched in December 2020 to anyone interested in improving research in these disciplines, regardless of experience. The society is international in scope, membership, and objectives. As of May 2021, SORTEE comprises of over 600 members.

Related terms: Society for the Improvement of Psychological Science (SIPS)

Reference(s): https://www.sortee.org/

Drafted by: Brice Beffara Bret; Dominique Roche

Reviewed (or Edited) by: Sarah Ashcroft-Jones; Mahmoud Elsherif; Charlotte R. Pennington; Graham Reid

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Society for the Improvement of Psychological Science (SIPS) [complete]

Definition: A membership society founded to further promote improved methods and practices in the psychological research field. The society aims to complete its mission statement by enhancing the training of psychological researchers; by promoting research cultures that are more conducive to better quality research; by quantifying and empirically

assessing the impact of such reforms; and by leading outreach events within and outside psychology to better the current state of research norms.

Related terms: Society for Open, Reliable, and Transparent Ecology and Evolutionary biology (SORTEE)

Reference(s): https://improvingpsych.org/

Drafted by: Mahmoud Elsherif

Reviewed (or Edited) by: Ashley Blake; Jade Pickering; Graham Reid; Flávio Azevedo

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Social class [complete]

Definition: Social class is usually measured using both objective and subjective measurements, as recommended by the American Psychological Association (American Psychological Association,Task Force on Socioeconomic Status, 2007). Unlike the conventional concept, which only considers one factor, either education or income (e.g., economic variables), an individual's social class is considered to be a combination of their education, income, occupational prestige, subjective social status, and self-identified social class. Social class is partly a cultural variable, as it is a stable variable and likely to change slowly over the years. Social class can have important implications to academic outcomes. An individual may have a high socio-economic status yet identify as a working class individual. Working class students tend to have different life circumstances and often more restrictive commitments than middle-class students, which make their integration with other students more difficult (Rubin, 2021). The lack of time and money is obstructive to their social

experience at university. Working class students are more likely to work to support themselves, resulting in less time for academic activities and for socializing with other students as well as less money to purchase items linked to social experiences (e.g. food).

Related terms: Social integration

Reference(s): Evans and Rubin (2021); Rubin et al. (2019); Rubin (2021); Saegert et al. (2007)

Drafted by: Mahmoud Elsherif

Reviewed (or Edited) by: Leticia Micheli; Eliza Woodward; Julika Wolska; Gerald Vineyard**;** Yu-Fang Yang

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Social integration [complete]

Definition: Social integration is a multi-dimensional construct. In an academic context, social integration is related to the quantity and quality of the social interactions with staff and students, as well as the sense of connection and belonging to the university and the people within the institute. To be more specific, social support, trust, and connectedness are all variables that contribute to social integration. Social integration has important implications for academic outcomes and mental wellbeing (Evans & Rubin, 2021). Working class students are less likely to integrate with other students, since they have differing social and economic backgrounds and less disposable income. Thus they are not able to experience as many educational and fiscal opportunities than others. In turn, this can lead to poor mental health and feelings of ostracism (Rubin, 2021).

Related terms: Social class

Reference(s): Evans and Rubin (2021); Rubin et al. (2019); Rubin (2021)

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Drafted by: Mahmoud Elsherif

Reviewed (or Edited) by: Leticia Micheli; Eliza Woodward; Julika Wolska**;** Gerald Vineyard; Yu-Fang Yang; Flávio Azevedo

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Specification Curve Analysis **almost done**

Definition: An analytic approach that consists of identifying, calculating, visualising and interpreting results (through inferential statistics) for *all* reasonable specifications for a particular research question (see Simonsohn et al. 2015). Specification curve analysis helps make transparent the influence of presumably arbitrary decisions during the scientific progress (e.g., experimental design, construct operationalization, statistical models or several of these) made by a researcher by comprehensively reporting all non-redundant, sensible tests of the research question. Voracek et al. (2019) suggest that SCA differs from multiverse analysis with regards to the graphical displays (a specification curve plot rather than a histogram and tile plot) and the use of inferential statistics to interpret findings.

Related terms: Multiverse analysis; Research synthesis; Robustness (analyses); Selective reporting; Vibration of effects

Reference(s): Simonsohn et al. (2015); Simonsohn (2020); Voracek et al. (2019)

Drafted by: Bradley Baker

Reviewed (or Edited) by: Tina B. Lonsdorf; Sam Parsons; Charlotte R. Pennington

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Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Statistical Assumptions [complete]

Definition: Analytical approaches and models assume certain characteristics of one's data (e.g., statistical independence, random samples, normality, equal variance,...). Before running an analysis, these assumptions should be checked since their violation can change the results and conclusion of a study. Good practice in open and reproducible science is to report assumption testing in terms of the assumptions verified and the results of such checks or corrections applied.

Related terms: Null Hypothesis Significance Testing (NHST); Statistical Significance; Statistical Validity; Transparency; Type I error; Type II error; Type M error; Type S error

Reference: Garson (2012); Hahn and Meeker (1993); Hoekstra et al. (2012); Nimon (2012)

Originally drafted by: Graham Reid

Reviewed (or Edited) by: Jamie P. Cockcroft; Sam Parsons; Martin Vasilev; Julia Wolska

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Statistical power [complete]

Definition: Statistical power is the long-run probability that a statistical test correctly rejects the null hypothesis if the alternative hypothesis is true. It ranges from 0 to 1, but is often expressed as a percentage. Power can be estimated using the significance criterion

(alpha), effect size, and sample size used for a specific analysis technique. There are two main applications of statistical power. A priori power where the researcher asks the question "given an effect size, how many participants would I need for X% power?". Sensitivity power asks the question "given a known sample size, what effect size could I detect with X% power?".

Related terms: Effect Size; Meta-analysis; Null Hypothesis Significance Testing (NHST); Power Analysis; Positive Predictive Value; Quantitative research; Sample size; Significance criterion (alpha); Type I error; Type II error

Related terms to alternative definition: Type II Error

Reference(s): Carter et al. (2021); Cohen (1962); Cohen (1988); Dienes (2008); Giner-Sorolla et al. (2019); Ioannidis (2005); Lakens (2021a)

Drafted by: Thomas Rhys Evans

Reviewed (or Edited) by: James E. Bartlett; Jamie P. Cockcroft; Adrien Fillon; Emma Henderson; Tamara Kalandadze; William Ngiam; Catia M. Oliveira; Charlotte R. Pennington; Graham Reid; Martin Vasilev; Qinyu Xiao; Flávio Azevedo

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Statistical significance [complete]

Definition: A property of a result using Null Hypothesis Significance Testing (NHST) that, given a significance level, is deemed unlikely to have occurred given the null hypothesis. Tenny and Abdelgawad (2017) defined it as "a measure of the probability of obtaining your data or more extreme data assuming the null hypothesis is true, compared to a pre-selected acceptable level of uncertainty regarding the true answer" (p. 1). Conventions for determining the threshold vary between applications and disciplines but ultimately depend

on the considerations of the researcher about an appropriate error margin. The American Statistical Association's statement (Wasserstein & Lazar, 2016) notes that "Researchers often wish to turn a p-value into a statement about the truth of a null hypothesis, or about the probability that random chance produced the observed data. The p-value is neither. It is a statement about data in relation to a specified hypothetical explanation, and is not a statement about the explanation itself" (p. 131).

Related terms: Alpha error; Frequentist statistics; Null hypothesis; Null Hypothesis Significance Testing (NHST); *P*-value; Type I error

Incorrect definition: Statistical significance describes the likelihood of the observed result against chance (regardless of the null hypotheses)

Reference(s): Cassidy et al. (2019); Tenny and Abdelgawad (2021); Wasserstein and Lazar (2016)

Drafted by: Alaa AlDoh; Flávio Azevedo

Reviewed (or Edited) by: James E. Bartlett; Alexander Hart**;** Annalise A. LaPlume; Charlotte R. Pennington; Graham Reid; Timo Roettger; Suzanne L. K. Stewart

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Statistical validity **almost done**

Definition: The extent to which conclusions from a statistical test are accurate and reflective of the true effect found in nature. In other words, whether or not a relationship exists between two variables and can be accurately detected with the conducted analyses. Threats to statistical validity include low power, violation of assumptions, reliability of measures, etc, affecting the reliability and generality of the conclusions.

Related terms: Power; Validity; Statistical assumptions

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Reference(s): Cook and Campbell (1979); Drost (2011)

Drafted by: Annalise A. LaPlume

Reviewed (or Edited) by: Jamie P. Cockcroft, Zoltan Kekecs; Graham Reid

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STRANGE [complete]

Definition: The STRANGE "framework" is a proposal and series of questions to help animal behaviour researchers consider sampling biases when planning, performing and interpreting research with animals. STRANGE is an acronym highlighting several possible sources of sampling bias in animal research, such as the animals' Social background; Trappability and self-selection; Rearing history; Acclimation and habituation; Natural changes in responsiveness; Genetic make-up, and Experience.

Related terms: Bias; Constraints on Generality (COG); Populations; Sampling bias; WEIRD

Reference(s): Webster and Rutz (2020)

Drafted by: Mahmoud Elsherif

Reviewed (or Edited) by: Ben Farrar; Zoe Flack; Elias Garcia-Pelegrin; Charlotte R. Pennington; Graham Reid

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StudySwap [complete]

Definition: A free online platform through which researchers post brief descriptions of research projects or resources that are available for use ("haves") or that they require and another researcher may have ("needs"). StudySwap is a crowdsourcing

approach to research which can ensure that fewer research resources go unused and more researchers have access to the resources they need.

Related terms: Collaboration; Crowdsourcing; Team science

Reference: Chartier et al. (2018); https://osf.io/view/StudySwap

Originally drafted by: Charlotte R. Pennington

Reviewed (or Edited) by: Mahmoud Elsherif; Helena Hartmann; Emma Henderson; Graham Reid

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Systematic Review [complete]

Definition: A form of literature review and evidence synthesis. A systematic review will usually include a thorough, repeatable (reproducible) search strategy including key terms and databases in order to find relevant literature on a given topic or research question. Systematic reviewers follow a process of screening the papers found through their search, until they have filtered down to a set of papers that fit their predefined inclusion criteria. These papers can then be synthesised in a written review which may optionally include statistical synthesis in the form of a meta-analysis as well. A systematic review should follow a standard set of guidelines to ensure that bias is kept to a minimum for example PRISMA (Moher et al., 2009; Page et al., 2021), Cochrane Systematic Reviews (Higgins et al., 2019), or NIRO-SR (Topor et al., 2021).

Related terms: Meta-analysis; CONSORT; Non-Intervention, Reproducible, and Open Systematic Reviews (NIRO-SR); PRISMA

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Reference: Higgins et al. (2019); Moher et al. (2009); Page et al. (2021); Topor et al. (2021)

Originally drafted by: Jade Pickering

Reviewed (or Edited) by: Mahmoud Elsherif; Adam Parker; Charlotte R. Pennington; Timo Roettger; Marta Topor; Emily A. Williams; Flávio Azevedo

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Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

T

Tenzing [complete]

Definition: *tenzing* is an online webapp and R package that helps researchers to track and report the contributions of each team member using the CRediT taxonomy in an efficient way. Team members of a research project can indicate their contributions to each CRediT role using an online spreadsheet template, and provide any additional authors' information (e.g., name, affiliation, order in publication, email address, and ORCID iD). Upon writing the manuscript, *tenzing* can automatically create a list of contributors belonging to each CRediT role to be included in the contributions section and create the manuscript's title page.

Related terms: Authorship; Consortium authorship; Contributions; CRediT

Reference(s): Holcombe et al. (2020)

Drafted by: Marton Kovacs

Reviewed (or Edited) by: Balazs Aczel; Mahmoud Elsherif; Helena Hartmann; Charlotte R. Pennington; Graham Reid; Flávio Azevedo

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Theory #review needed#

Definition: A theory is a unifying explanation or description of a process or phenomenon, which is amenable to repeated testing and verifiable through scientific investigation, using various experiments led by several independent researchers. Theories may be rejected or deemed an unsatisfactory explanation of a phenomenon after rigorous

testing of a new hypothesis that explains the phenomena better or seems to contradict them but is more generalisable to a wider array of findings.

Related terms: Hypothesis; Model (philosophy); Theory building

Reference(s): Schafersman (1997); Wacker (1998)

Drafted by: Aoife O'Mahony

Reviewed (or Edited) by: Mahmoud Elsherif; Helena Hartmann; Charlotte R. Pennington; Graham Reid

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Theory building #review needed#

Definition: The process of creating and developing a statement of concepts and their interrelationships to show how and/or why a phenomenon occurs. Theory building leads to theory testing.

Related terms: Hypothesis; Model (philosophy); Theory; Theoretical contribution; Theoretical model

Reference(s): Borsboom et al. (2020); Corley and Gioia (2011); Gioia and Pitrie (1990); Wacker (1998)

Drafted by: Filip Dechterenko

Reviewed (or Edited) by: Mahmoud Elsherif; Helena Hartmann; Charlotte R. Pennington

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The Troubling Trio [complete]

Definition: Described as a combination of low statistical power, a surprising result, and a *p*-value only slightly lower than .05.

Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Related terms: Replication; Reproducibility; Null Hypothesis Significance Testing (NHST); *P*-hacking; Questionable Research Practices or Questionable Reporting Practices (QRPs)

Reference(s): Lindsay (2015)

Drafted by: Halil Emre Kocalar

Reviewed (or Edited) by:; Catia M. Oliveira; Adam Parker; Sam Parsons;Charlotte R. Pennington

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Transparency [complete]

Definition: Having one's actions open and accessible for external evaluation. Transparency pertains to researchers being honest about theoretical, methodological, and analytical decisions made throughout the research cycle. Transparency can be usefully differentiated into "scientifically relevant transparency" and "socially relevant transparency". While the former has been the focus of early Open Science discourses, the latter is needed to provide scientific information in ways that are relevant to decision makers and members of the public (Elliott & Resnik, 2019).

Related terms: Credibility of scientific claims; Open science; Preregistration; Reproducibility; Trustworthiness

Reference(s): Elliott and Resnik (2019); Lyon (2016); Syed (2019)

Drafted by: William Ngiam

Reviewed (or Edited) by: Tamara Kalandadze; Aoife O'Mahony; Eike Mark Rinke; Flávio Azevedo

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Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

Transparency Checklist [complete]

Definition: The transparency checklist is a consensus-based, comprehensive checklist that contains 36 items that cover the preprepregistration, methods, results and discussion and data, code and materials availability. A shortened 12-item version of the checklist is also available. Checklist responses can be submitted alongside a manuscript for review. While the checklist can also work for educational purposes, it mainly aims to support researchers to identify concrete actions that can increase the transparency of their research while a disclosed checklist can help the readers and reviewers gain critical information about different aspects of transparency of the submitted research.

Related terms: Credibility of scientific claims; Open science; Preregistration; Reproducibility; Trustworthiness

Reference(s): Aczel et. al. (2021)

Drafted by: Barnabas Szaszi

Reviewed (or Edited) by: Sarah Ashcroft-Jones; Mahmoud Elsherif; Helena Hartmann; Graham Reid; Flávio Azevedo

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Triple-blind peer review [complete]

Definition: Evaluation of research products by qualified experts where the author(s) are anonymous to both the reviewer(s) and editor(s). **“**Blinding of the authors and their affiliations to both editors and reviewers. This approach aims to eliminate institutional, personal, and gender biases” (Tvina et al., 2019, p. 1082).

Related terms: Double-blind peer review; Open Peer Review; Single-blind peer review

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Reference(s): Largent and Snodgrass (2016); Tvina et al. (2019)

Drafted by: Mahmoud Elsherif

Reviewed (or Edited) by: Bradley Baker; Helena Hartmann; Charlotte R. Pennington; Christopher Graham

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TRUST Principles [complete]

Definition: A set of guiding principles that consider Transparency, Responsibility, User focus, Sustainability, and Technology (TRUST) as the essential components for assessing, developing, and sustaining the trustworthiness of digital data repositories (especially those that store research data). They are complementary to the FAIR Data Principles.

Related terms: FAIR principles; Metadata; Open Access; Open Data; Open Material; Repository

Reference: Lin et al. (2020)

Originally drafted by: Aleksandra Lazić

Reviewed (or Edited) by: Jamie P. Cockcroft; Mahmoud Elsherif; Helena Hartmann; Sam Parsons

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Type I error [complete]

Definition: "Incorrect rejection of a null hypothesis" (Simmons et al., 2011, p. 1359), i.e. finding evidence to reject the null hypothesis that there is no effect when the evidence is actually in favouring of retaining the null that there is no effect (For example, a judge imprisoning an innocent person). Concluding that there is a

significant effect and rejecting the null hypothesis when your findings actually occured by chance.

Related terms: Frequentist statistics; Null Hypothesis Significance Testing (NHST); Null Result; *P* value; Questionable Research Practices or Questionable Reporting Practices (QRPs); Reproducibility crisis (aka Replicability or replication crisis); Scientific integrity; Statistical power; True positive result; Type II error

Reference: Simmons et al., (2011)

Originally drafted by: Lisa Spitzer

Reviewed (or Edited) by: Mahmoud Elsherif; Adrien Fillon; Helena Hartmann; Matt Jaquiery; Mariella Paul; Charlotte R. Pennington; Graham Reid; Olly Robertson; Mirela Zaneva

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Type II error [complete]

Definition: A false negative result occurs when the alternative hypothesis is true in the population but the null hypothesis is accepted as part of the analysis (Hartgerink et al., 2017). That is, finding a non-significant statistical result when the effect is true (For example, a judge passing an innocent verdict on a guilty person). False negatives are less likely to be the subject of replications than positive results (Fiedler et al., 2012), and remain an unresolved issue in scientific research (Hartgerink et al., 2017).

Related terms: Effect size; Null Hypothesis Significance Testing (NHST); Questionable Research Practices or Questionable Reporting Practices (QRPs); Reproducibility crisis (aka Replicability or replication crisis); Scientific integrity; Statistical power; True positive result; Type I error

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Reference(s): Fiedler et al. (2012); Hartgerink et al. (2017)

Originally drafted by: Olly Robertson

Reviewed (or Edited) by: Mahmoud Elsherif; Charlotte R. Pennington

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Type M error [complete]

Definition: A Type M error occurs when a researcher concludes that an effect was observed with magnitude lower or higher than the real one. For example, a type M error occurs when a researcher claims that an effect of small magnitude was observed when it is large in truth or vice versa.

Related terms: Statistical power; Type S error; Type I error; Type II error

Reference(s): Gelman and Carlin (2014); Lu et al.(2018)

Originally drafted by: Eduardo Garcia-Garzon

Reviewed (or Edited) by: Mahmoud Elsherif; Helena Hartmann; Graham Reid; Mirela Zaneva

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Type S error [complete]

Definition: A Type S error occurs when a researcher concludes that an effect was observed with an opposite sign than real one. For example, a type S error occurs when a researcher claims that a positive effect was observed when it is negative in reality or vice versa.

Related terms: Statistical power; Type M error; Type I error; Type II error

Reference(s): Gelman and Carlin (2014); Lu et al. (2018)

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Originally drafted by: Eduardo Garcia-Garzon

Reviewed (or Edited) by: Helena Hartmann; Sam Parsons; Graham Reid; Mirela Zaneva

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U

Under-representation [complete]

Definition: Not all voices, perspectives, and members of the community are adequately represented. Under-representation typically occurs when the voices or perspectives of one group dominate, resulting in the marginalization of another. This often affects groups who are a minority in relation to certain personal characteristics.

Related terms: Equity; Fairness; Inequality; WEIRD

Drafted by: Madeleine Pownall

Reviewed (or Edited) by: Mahmoud Elsherif; Helena Hartmann; Bethan Iley; Adam Parker; Charlotte R. Pennington, Mirela Zaneva

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Universal design for learning (UDL) [complete]

Definition: A framework for improving learning and optimising teaching based upon scientific insights of how humans learn. It aims to make learning inclusive and transformative for all people in which the focus is on catering to the differing needs of different students. It is often regarded as an evidence-based and scientifically valid framework to guide educational practice, consisting of three key principles: engagement, representation, and action and expression. In addition, UDL is included in the Higher Education Opportunity Act of 2008 (Edyburn, 2010).

Related terms: Equal opportunities; Inclusivity; Pedagogy; Teaching practice

Reference(s): Hitchcock et al. (2002); Rose (2000); Rose and Meyer (2002)

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Drafted by: Charlotte R. Pennington

Reviewed (or Edited) by: Valeria Agostini; Mahmoud Elsherif; Graham Reid; Mirela Zaneva; Flávio Azevedo

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V

Validity [complete]

Definition: Validity refers to the application of statistical principles to arrive at well-founded —i.e., likely corresponding accurately to the real world— concepts, conclusions or measurement. In psychometrics, validity refers to the extent to which something measures what it intends to or claims to measure. Under this generic term, there are different types of validity (e.g., internal validity, construct validity, face validity, criterion validity, diagnostic validity, discriminant validity, concurrent validity, convergent validity, predictive validity, external validity).

Related terms: Causality; Construct validity; Content validity; Criterion validity; External validity; Face validity; Internal validity; Measurement; Questionable Measurement Practices (QMP); Psychometry; Reliability; Statistical power; Statistical validity; Test

Reference(s): Campbell (1957); Boorsboom et al. (2004); Kelley (1927)

Drafted by: Tamara Kalandadze; Madeleine Pownall; Flávio Azevedo

Reviewed (or Edited) by: Eduardo Garcia-Garzon; Halil E. Kocalar; Annalise A. LaPlume; Joanne McCuaig; Adam Parker; Charlotte R. Pennington

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Version control [complete]

Definition: The practice of managing and recording changes to digital resources (e.g. files, websites, programmes, etc.) over time so that you can recall specific versions later. Version control systems are designed to record the history of changes (who, what and when), and

help to avoid human errors (e.g. working on the wrong version). For example, the Git version control system is a widely used software tool that originally helped software developers to version control shared code and is now used across many scientific disciplines to manage and share files.

Related terms: Git; Reproducibility; Software configuration management; Source code management; Source control

Reference: https://git-scm.com/book/en/v2/Getting-Started-About-Version-Control

Drafted by: Mahmoud Elsherif

Reviewed (or Edited) by: Sarah Ashcroft-Jones; Thomas Rhys Evans; Helena Hartmann; Matt Jaquiery; Adam Parker; Charlotte R. Pennington; Robert M. Ross; Timo Roettger; Andrew J. Stewart

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W

Webometrics **almost done**

Definition: Webometrics involves the study of online content. Webometrics focuses on the numbers and types of hyperlinks between different online sites. Such approaches have been considered as a type of altmetrics. “The study of the quantitative aspects of the construction and use of information resources, structures and technologies on the Web drawing on bibliometric and informetric approaches” (Björneborn & Ingwersen, 2004).

Related terms: Altmetrics; Bibliometrics

Reference(s): Björneborn and Ingwersen (2004)

Drafted by: Charlotte R. Pennington

Reviewed (or Edited) by: Christopher Graham; Mirela Zaneva

WEIRD [complete]

Definition: This acronym refers to Western, Educated, Industrialized, Rich and Democratic societies. Most research is conducted on, and conducted by, relatively homogeneous samples from WEIRD societies. This limits the generalizability of a large number of research findings, particularly given that WEIRD people are often psychological outliers. It has been argued that “WEIRD psychology ” started to evolve culturally as a result of societal changes and religious beliefs in the Middle Ages in Europe. Critics of this term suggest it presents a binary view of the global population and erases variation that exists both between and within societies, and that other aspects of diversity are not captured.

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Related terms: Bias; BIZARRE; Diversity; Generalizability; Populations; Sampling bias; STRANGE

Reference(s): Henrich (2020); Henrich et al. (2010); Muthukrishna et al., (2020); Syed and Kathawalla (2020)

Drafted by: Mahmoud Elsherif

Reviewed (or Edited) by: Zoe Flack; Matt Jaquiery; Bettina M. J. Kern; Adam Parker; Charlotte R. Pennington; Robert M. Ross; Suzanne L. K. Stewart

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X

Definition:

Related terms:

Alternative definition: (if applicable)

Related terms to alternative definition: (if applicable)

Reference(s):

Drafted by:

Reviewed (or Edited) by:

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Y

Definition:

Related terms:

Alternative definition: (if applicable)

Related terms to alternative definition: (if applicable)

Reference(s):

Drafted by:

Reviewed (or Edited) by:

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Z

Z-Curve [complete]

Definition: Computing a Z-score is a statistical approach mainly used to obtain the 'Estimated Replication Rate' (ERR) and 'Expected Discovery Rate' (EDR) for a set of reported studies. Calculating a *z*-curve for a set of statistically significant studies involves converting reported *p*-values to *z*-scores, fitting a finite mixture model to the distribution of *z*-scores, and estimating mean power based on the mixture model. The Z-curve analysis can be performed in R through a dedicated package - https://cran.r-project.org/web/packages/zcurve/index.html.

Related terms: Altmetrics; File drawer ratio; P-curve; P-hacking; Replication; Statistical power

Reference(s): Bartoš and Schimmack (2020); Brunner and Schimmack (2020)

Drafted by: Bradley J. Baker

Reviewed (or Edited) by: Kamil Izydorczak; Sam Parsons; Charlotte R. Pennington; Mirela Zaneva

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Zenodo #review needed#

Definition: An open science repository where researchers can deposit research papers, reports, data sets, research software, and any other research-related digital artifacts. Zenodo creates a persistent digital object identifier (DOI) for each

submission to make it citable. This platform was developed under the European OpenAIRE program and operated by CERN.

Related terms: DOI (digital object identifier); figshare; Open data; Open Science Framework; Preprint

Reference: www.zenodo.org

Originally drafted by: Ali H. Al-Hoorie

Reviewed (or Edited) by: Sara Middleton

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Please do not add or edit this document. The project is temporarily *frozen*. Instructions for Phase 2 will follow soon.

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