Ensuring the Research Integrity of Systematic Reviews

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Abstract

Systematic reviews are high quality reviews which aim to be transparent, systematic and replicable in order to reduce subjectivity and bias, to produce trustworthy results which can inform practice, policy, theory and future research (Siddaway et al., 2019). However, many systematic reviews are not sufficiently transparent, systematic and replicable.

Therefore, the objective of my presentation is to outline the stages of conducting a systematic review, describing how to ensure the research integrity of systematic reviews by incorporating The Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) 2020 checklist (Page et al., 2021).

Preregister the protocol

- Indicate where the protocol can be accessed
- Where? E.g. Prospero, Open Science Framework, Cochrane
- Why?
  - ❖ Reduce methodological biases
  - ❖ Reduce questionable practices (e.g. p-value fishing)
  - ❖ Avoid retrospective decision making which may be biased

Search strategy

- Identification of studies from the databases
- Manual searching from journals, reference lists, citations
- Grey literature (e.g. dissertations) should be included to prevent publication bias
- PRISMA flowchart for the search procedure

Selection process
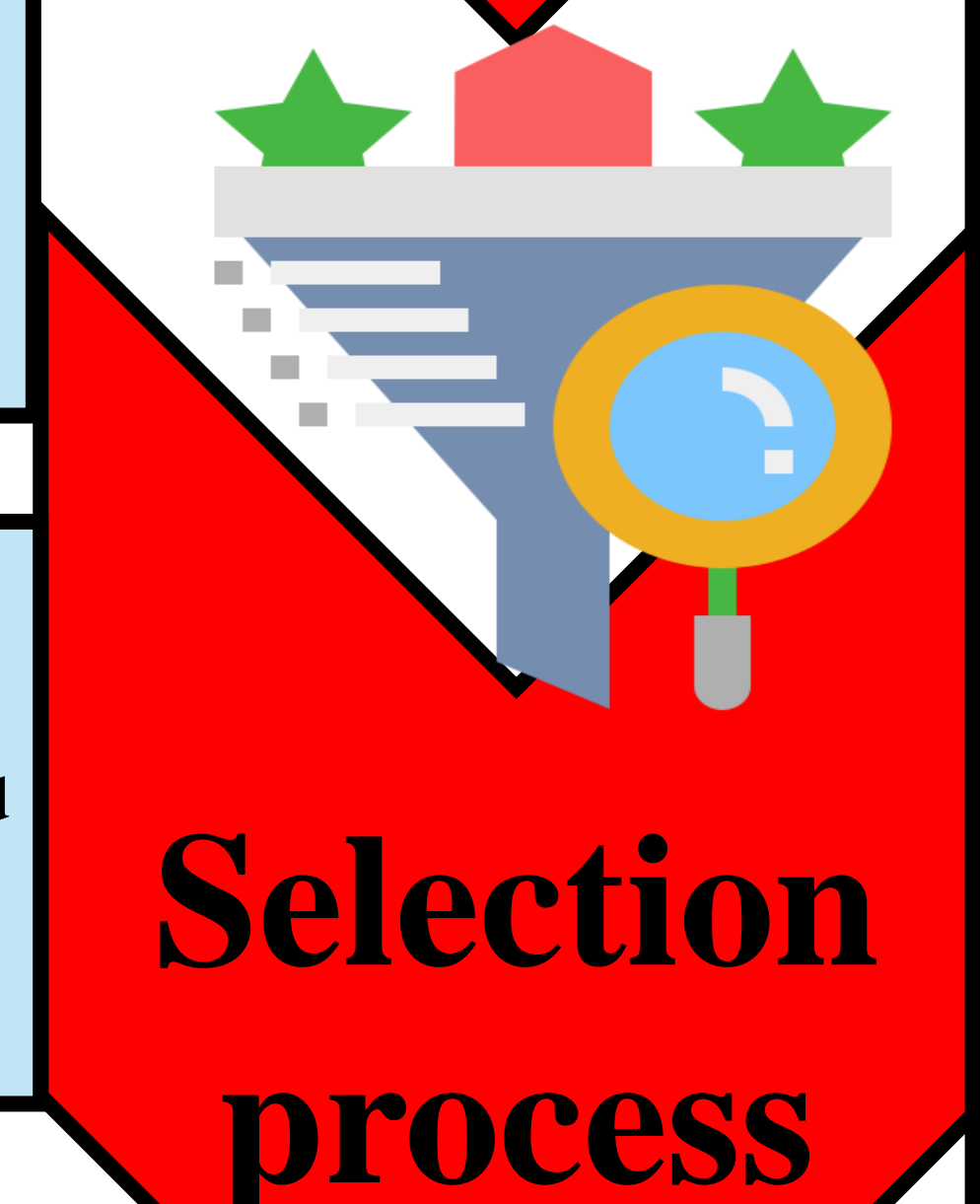
- Determine the inclusion and exclusion criteria through discussion
- Screening: Specify the reasons for exclusion of studies based on title and abstract relevancy
- Eligibility: Specify the reasons for exclusion of studies based on full-text assessment
- 2 independent reviewers to reduce biases (inter-rater reliability calculated e.g. Cohen's Kappa κ)
- Specify which reference manager tool used to store studies (e.g. EndNote, Mendeley)

Critical appraisal
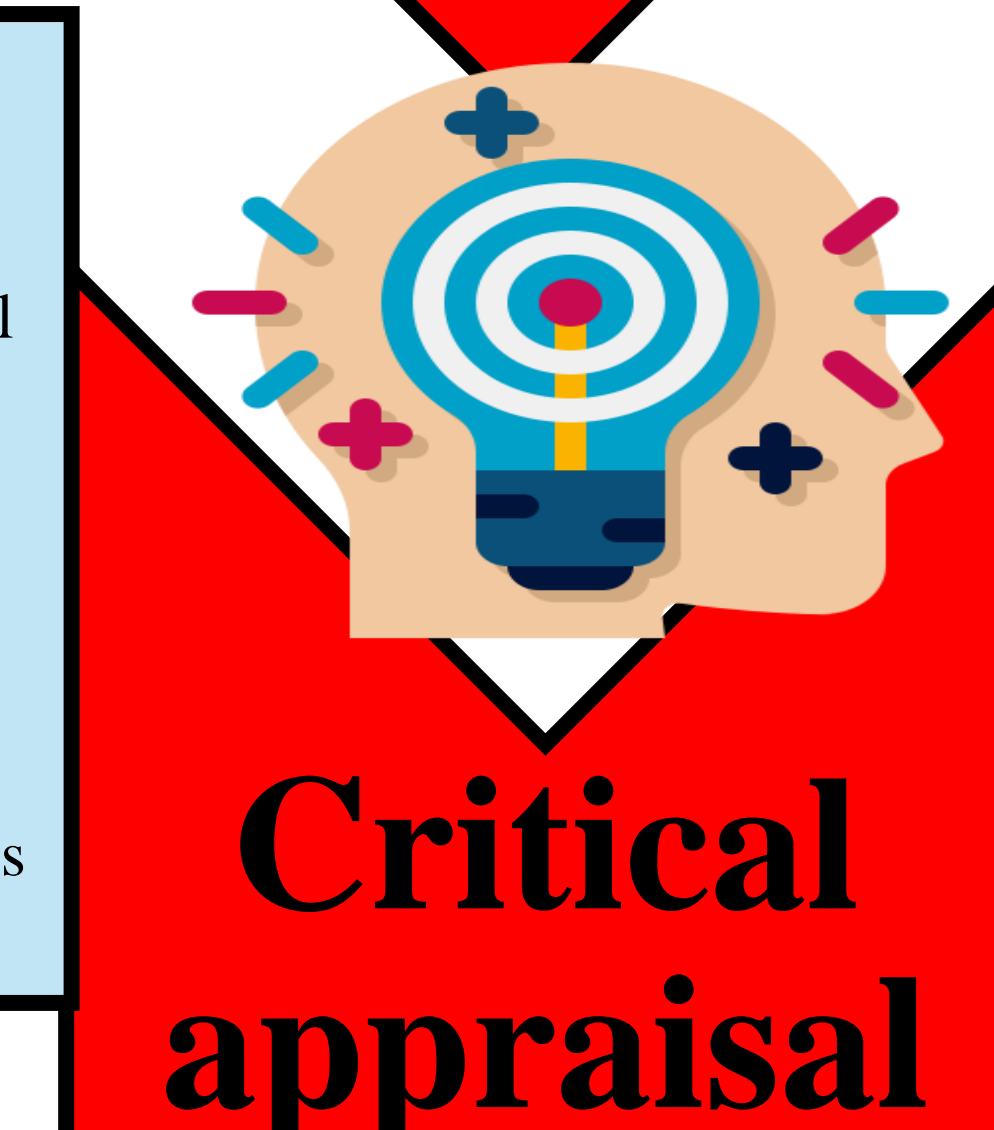
- Quality assessment of included studies to identify biases which may affect the validity of the review's results
- 2 independent reviewers to reduce biases
- Inter-rater reliability calculated (Cohen's Kappa κ)
- Study quality table

Synthesis of results

- Thematic analysis can be used to synthesize the included quantitative, qualitative and mixed methods studies
  - ❖ Coding frame developed through discussion
  - ❖ Line-by-line coding of 25% of the studies by 2 independent coders to reduce biases (inter-rater reliability calculated)
  - ❖ Line-by-line coding → Descriptive themes (discussion) → Analytical themes (discussion)
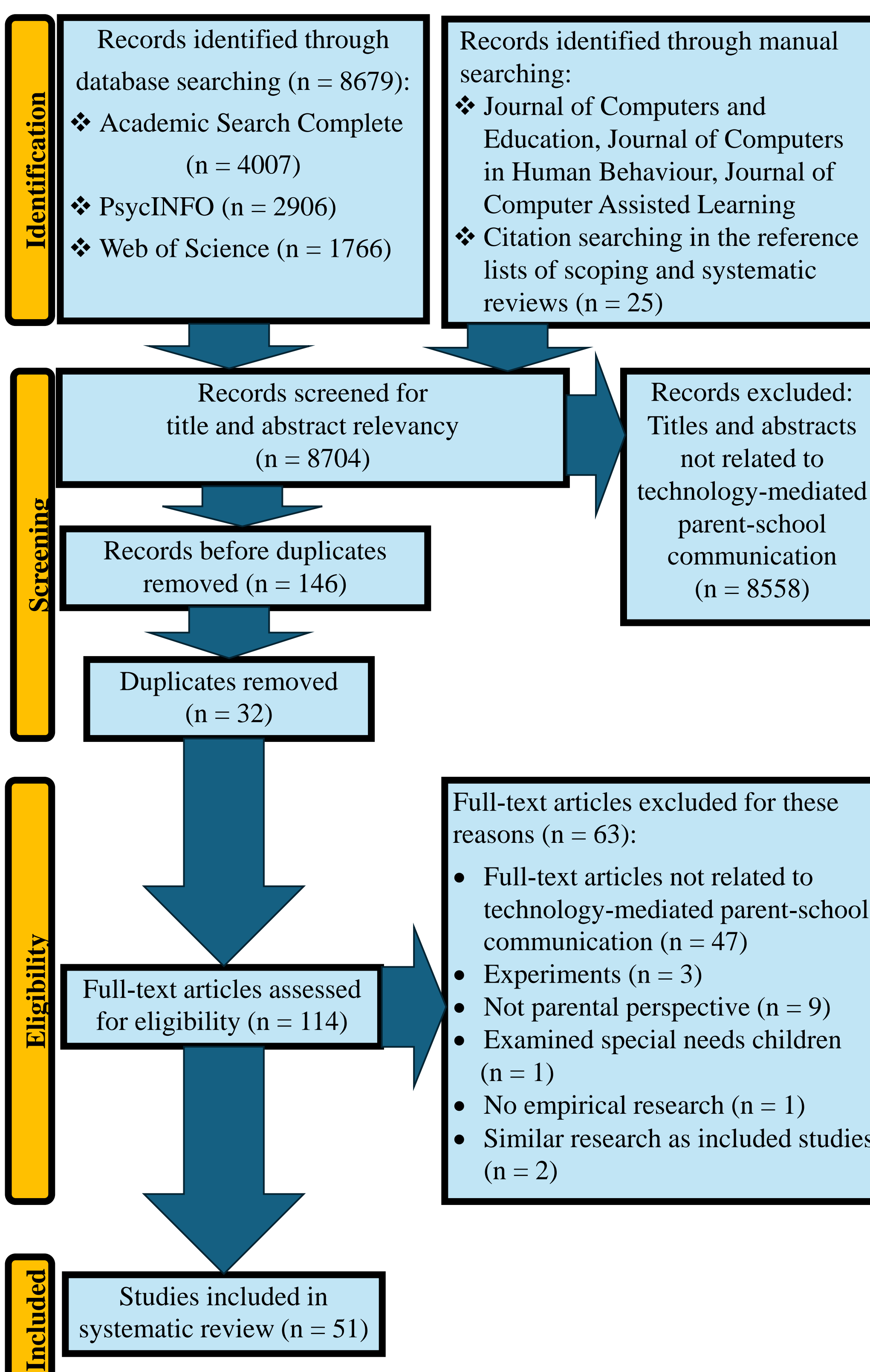- Key themes and study characteristics tables

Identification
- Records identified through database searching (n = 8679):
  - ❖ Academic Search Complete (n = 4007)
  - ❖ PsycINFO (n = 2906)
  - ❖ Web of Science (n = 1766)
- Records identified through manual searching:
  - ❖ Journal of Computers and Education, Journal of Computers in Human Behaviour, Journal of Computer Assisted Learning
  - ❖ Citation searching in the reference lists of scoping and systematic reviews (n = 25)

Screening
- Records screened for title and abstract relevancy (n = 8704)
- Records before duplicates removed (n = 146)
- Duplicates removed (n = 32)
- Records excluded: Titles and abstracts not related to technology-mediated parent-school communication (n = 8558)

Eligibility
- Full-text articles assessed for eligibility (n = 114)
- Full-text articles excluded for these reasons (n = 63):
  - Full-text articles not related to technology-mediated parent-school communication (n = 47)
  - Experiments (n = 3)
  - Not parental perspective (n = 9)
  - Examined special needs children (n = 1)
  - No empirical research (n = 1)
  - Similar research as included studies (n = 2)

Included
- Studies included in systematic review (n = 51)

Figure 1. PRISMA flowchart for the search procedure
Lee, S. M. S., Gao, L., Tan, C. Y. & An, A. Q. (2024). Parents' Perspectives of Technology-mediated parent-school Communication: A Systematic Review (under review)

References

Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D.,… Moher, D. (2021). The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. *BMJ 372*(71). https://doi.org/10.1136/bmj.n71

Siddaway, A.P., Wood, A. M., & Hedges, L.V. (2019). How to do a systematic review: A best practice guide for conducting and reporting narrative reviews, meta-analyses and meta-syntheses, *Annual Review of Psychology, 70,* 747-770. https://doi.org/10.1146/annurev-psych-010418-102803