GuidelinesForScience.com*

Directors

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Checklist of Criteria for
Compliance with The Scientific Method [a,b]

Paper title:		
Reviewer:	**Date:**	**Time spent (minutes):**

Instructions for Raters

You should skim the paper while you complete the checklist ***as a skeptical reviewer***.

1. **Rate each lettered item, (a-d)**, below, with a checkbox (☒) as
   True if the research complies,
   na (not applicable), or
   F/? (False/Unclear) if the research does *not* comply, or if you are unsure.
   IMPORTANT: If you are ***not convinced*** that the paper complied, rate the item **F/?.**
2. If you rate an item **True**, give reasons for your rating in your own words after the ✍ symbol.
   (Items marked ✶ are *necessary* for science, but are not individually sufficient.)
3. **Rate criteria 1-8** as **True** with a checkbox (☒), *only if all necessary lettered items (✶) for the criterion are rated* **True**.

First assess whether the paper complies with the lettered items under each criterion, below. Then assess whether it complies with each of the eight criterion based on compliance with the lettered items. *Do not speculate.*	**True na F/?**
1. Problem is important for decision making, policy, or method development ✍	☐
a. Importance of the problem clear from the title☐, abstract☐, result tables☐, or conclusions☐ (*Check each that applies*) ✍	☐ ✶ ☐
b. The findings add to cumulative scientific knowledge ✍	☐ ✶ ☐
c. The findings can be used to improve people's lives without resorting to duress or deceit ✍	☐ ✶ ☐
d. Uses of the findings are important and *clear to you* ✍	☐ ✶ ☐
2. Prior knowledge comprehensively reviewed and summarized ✍	☐
a. The paper describes objective and comprehensive *procedures* used to search for prior useful scientific knowledge ✍	☐ ✶ ☐
b. The paper describes how prior substantive findings were used to develop hypotheses (e.g. direction and magnitude of effects of each variable) and research procedures ✍	☐ ✶ ☐
3. Disclosure is sufficiently comprehensive for understanding and replication ✍	☐
a. Methods are fully and clearly described so as to be understood by researchers, students, and managers, or are well-known to readers, including potential users ✍	☐ ✶ ☐
b. Data are easily accessible using information provided in the paper ✍	☐ ✶ ☐
c. Sources of funding are described, or absence of external funding noted ✍	☐ ✶ ☐
4. Design was objective (*unbiased by advocacy*) ✍	☐
a. Prior hypotheses are clearly described (e.g., regarding directions and magnitudes of relationships, and effects of conditions) ✍	☐ ✶ ☐
b. All reasonable hypotheses (*including credible naïve, no-meaningful-difference, and current-practice hypotheses*) included in design ✍	☐ ✶ ☐
c. Revisions to hypotheses are described, or absence of revisions noted ✍	☐ ✶ ☐
5. Data are valid (true measures) and reliable (repeatable measures) ✍	☐
a. Data were shown to be relevant to the problem, or was obvious ✍	☐ ✶ ☐
b. All relevant data were used, including longest relevant series for time-series problems ✍	☐ ☐ ☐
c. Reliability of data was assessed, or was obvious ✍	☐ ✶ ☐
d. Other information needed for assessing the validity of the data is provided, such as known shortcomings and potential biases ✍	☐ ☐ ☐
6. Methods were valid (proven fit for purpose) and simple ✍	☐
a. Methods were explained clearly and shown valid—unless well known to intended readers, users, and reviewers, and validity is obvious ✍	☐ ✶ ☐
b. Methods were sufficiently simple for potential users to understand ✍	☐ ☐ ☐
c. Multiple validated methods were used ✍	☐ ☐ ☐
d. Methods used cumulative scientific knowledge explicitly ✍	☐ ☐ ☐
7. Experimental evidence was used to compare alternative hypotheses ✍	☐
a. Experimental evidence was used to compare hypotheses under explicit conditions ✍	☐ ✶ ☐
b. Predictive validity of hypotheses was tested using out-of-sample data ✍	☐ ✶ ☐
8. Conclusions follow logically from the evidence presented ✍	☐
a. Conclusions do not go beyond the evidence in the paper ✍	☐ ✶ ☐
b. Conclusions are not the product of confirmation bias ✍	☐ ✶ ☐
c. Conclusions do not reject a hypothesis by denying the antecedent ✍	☐ ✶ ☐
d. Conclusions do not support a hypothesis by affirming the consequent ✍	☐ ✶ ☐
Describe the most important scientific finding using your own words ✍	

Sum the criteria (1–8) **rated True for compliance: [ ] of 8.**

[a] *A version of this checklist is available at GuidelinesforScience.com.*
[b] *Researchers should rate their paper against this checklist before submitting.*

Version 82-book

The "Guidelines for science: evidence-based checklists" working paper is available from https://www.researchgate.net/publication/305712994_Guidelines_for_Science_Evidence-based_Checklists, and an MS-Word copy of the Checklist is available here.

* *Site under development*