As DR members well know, identifying effective instructional practices on the basis of rigorous research is critical for establishing sound policy and practice in special education. However, because studies contain error (e.g., random error, bias), the findings of individual studies should be considered with skepticism. Indeed, subsequent research frequently fails to reproduce study findings (Ioannidis, 2005; Open Science Collaboration, 2015) and outright scientific misconduct and fraud sometimes occur (George, 2016). For example, the uncritical acceptance of a fraudulent study suggesting that vaccinations cause autism (Wakefield et al., 1998) has created an international public health crisis. Accordingly, research findings merit confidence only when corroborated across multiple studies (see Moonesinghe, Khoury, & Janssens, 2007), as is reflected in standards for evidence-based practices in special education.

Despite its imperfections, science remains the best approach for identifying generally effective and ineffective practices because, among other reasons, the scientific method has a self-correcting mechanism (Alberts et al., 2015; Merton, 1942). That is, so long as researchers reexamine the validity of previous findings by conducting replication studies (see Cook, Therrien, & Coyne, in press), invalid findings will be identified as such over time. Indeed, replication and the scientific method functioned effectively when the fallacious connection between vaccinations and autism was exposed by subsequent research (see Godlee, Smith, & Marcovitch, 2011).

The scientific method, including the regular conduct of replication studies, is premised on norms to which scientists must adhere to advance knowledge (e.g., communalism; Merton, 1942). For example, researchers should be transparent and open with their methods and data so that others can meaningfully replicate and reexamine their findings. Yet contemporary norms in academia seem to prioritize novelty and statistical significance over openness, transparency, and replication (e.g., Nosek, Spies, & Motyl, 2012). One approach for changing how research is conducted and reported is for journal editors to encourage, if not require, that researchers adhere to practices that promote transparency, openness, and replication.

Toward that end, the Center for Open Science authored the Transparency and Openness Promotion (TOP) guidelines, available at https://cos.io/top/, to “translate scientific norms and values into concrete actions and change the current incentive structures to drive researchers’ behavior toward more openness” (Nosek et al., 2015, p. 1423). The guidelines consist of eight standards that focus on:

1. **Citation standards**: This standard encourages recognizing data sources, analytic methods (e.g., codes), and materials as original intellectual contributions by citing and referencing them (thereby providing research consumers information on how to retrieve this information).

2. **Data Transparency**
3. **Analytic Methods Transparency**

4. **Research Materials Transparency**: Collectively, the 2nd, 3rd, and 4th standards encourage researchers to make data, analytic methods, and research materials publicly available.

5. **Design and Analysis Transparency**: Whereas the preceding three standards target making a study’s methodological details available, this standard provides guidelines for what information should be reported.

6. **Preregistration of Studies**

7. **Preregistration of Analysis Plans**: Preregistration involves publicly posting a detailed research plan, which enables others to determine whether deviation from the plan occurred (e.g., publishing only statistically significant findings). The 6th standard encourages preregistering a study’s design, variables, and treatment conditions; and the 7th standard encourages preregistering data analysis plans.

8. **Replication**: The final standard encourages submission and impartial review of replication research.

Three levels of possible adoption are described for each standard. Level 1 adoption is designed to be easy to implement, whereas the second and third levels involve stronger standards that may be more challenging to enact. For example, for standards 2, 3, and 4 journals require researchers to indicate whether data, analytic methods, and materials are publicly available and, if so, how to access them at Level 1. At Level 2, journals require that data, analytic methods, and materials be posted in a repository, with exceptions (for legal or ethical reasons) identified upon article submission. Journals verify the public posting and replicability of data, analytic methods, and materials at Level 3.

As of March 9, 2016, the TOP Guidelines had 538 journal signatories that expressed their support for and interest in adopting the guidelines (I did not identify any from special education). Although adopting all the guidelines may not be feasible or desirable, we encourage (a) journal editors in our field to consider adopting selected guidelines (e.g., guidelines related to replication and transparency of data, analytic methods, and research materials), especially at the lower levels of adoption; and (b) special education researchers to adhere to the principles of openness and transparency underlying the guidelines.

**References**


Moonesinghe, R., Khoury, M. J., & Janssens, A. C. J. (2007). Most published research findings are false—But a little replication goes a long way. *PLoS Medicine, 4*(2), e28. doi:10.1371/journal.pmed.0040028

