

Version 4.1 of the WWC Standards and Procedures Handbooks

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Background/Context:

The WWC's *Standards and Procedures Handbooks* are two resources that guide the design quality and interpretation of evidence from impact studies in education. The main purpose of the *Standards Handbook* is to provide design guidance to primary study researchers that facilitates reliable causal inference. The main purpose of the *Procedures Handbook* is to guide WWC reviewers in their reviews of primary studies and syntheses of effects among studies of specific interventions. The handbooks cover a broad range of impact study designs including, randomized group designs, non-randomized group designs, regression discontinuity designs, and single-case designs. As research methodology advances, the WWC maintains and updates the *Handbooks* regularly. The proposed text of Version 4.1 was released for public comment in the summer of 2019, and the final Version 4.1 *Handbooks* include a number of significant changes from Version 4.0. These changes were designed to a) align WWC standards and procedures more closely with modern statistical approaches to research synthesis, b) provide avenues to more seamlessly integrate findings from multiple designs, and c) improve consistency and clarity in characterizing study findings.

Objective:

The objectives of this presentation are to summarize the recent changes made to the WWC *Handbooks* and the rationale behind the changes and to facilitate a conversation with conference attendees about the updates. The changes that we plan to discuss are described below.

Standards Handbook

Updates to single-case design standards: The Version 4.1 *Handbooks* remove visual analysis as a means of the WWC characterizing the magnitude of effects and rely on a design-comparable effect size approach, while still expecting SCD study authors to provide data to permit visual analysis for the sake of sensitivity analyses. This move allows WWC reviewers to extract standardized mean difference effect size estimates, and their variances, in a way that is comparable to group design studies. Importantly, this approach will allow effects from single-case design studies to be synthesized with effects from group design studies in WWC intervention reports.

Procedures Handbook

Synthesis using fixed-effects meta-analysis: In past versions of the WWC's handbooks, the WWC used an unweighted average to synthesize effect sizes in intervention reports and practice guides. Version 4.1 replaces that procedure with a fixed-effects meta-analytic model, where the effect sizes are weighted by the inverse of their variance (Hedges and Vevea, 1998). This change creates an opportunity to estimate both the population average effect as well as its variance.

Updated qualitative characterizations of the summary of evidence for an intervention report: Version 4.1 modifies how the WWC characterizes effects in intervention reports. This modification draws on the proposed revisions to the synthesis of studies (i.e., using fixed-effects meta-analysis). In previous versions of the handbooks, the WWC determined intervention report effectiveness ratings by using two elements: the number of studies in the intervention report that meet standards and the statistical significance of the outcomes. Version 4.1 adds a third element: the relative contribution of studies that receive a study rating of *Meets WWC Standards Without Reservations* versus those studies that *Meets WWC Standards With Reservations*. An intervention can only receive the highest rating if more than 50.0% percent of the fixed-effects meta-analytic weight derives from studies that have a rating of *Meets WWC Standards Without Reservations*.

Discussion:

These changes to the *Handbooks* reflect the WWC’s effort to provide a common set of standards and procedures for evaluating and synthesizing intervention effectiveness research in education that reflect advances in research methodology. Some of the changes reflect major turning points to long-standing WWC practice. On balance, these changes help advance the WWC’s ability serve as resource that integrates the field’s most rigorous research across varied designs and a broad set of interventions. Additionally, these updates advance the WWC’s ability to communicate findings consistently and clearly to broad stakeholder groups.