

WWC EVIDENCE REVIEW PROTOCOL FOR EDUCATION INTERVENTIONS FOR CHILDREN WITH INTELLECTUAL DISABILITY

Topic Area Focus

The What Works Clearinghouse (WWC) review in this topic area focuses on school-based interventions designed for use with children ages 5 to 21 with intellectual disability. This review will focus only on studies that examine interventions that impact specified outcome areas (see below) and that are implemented (1) in a school; (2) in other locations if implemented under the direction of, or in collaboration with, a school program funded through the Individuals with Disabilities Education and Improvement Act (IDEA); or (3) by a researcher if the intervention could clearly be used in a typical school-age program as determined by the principal investigator (PI). Outcome areas include reading, literacy, math, science, self-care/daily living, community, social-emotional, self-determination, and communication/language competency.

The review of evidence in this topic area addresses the following questions:

- Which interventions improve the reading, literacy, math, science, self-care/daily living, community, social-emotional, self-determination, and communication/language competency outcomes for children with intellectual disability?
- Does the effectiveness of interventions for children with intellectual disability vary by type of outcome?
- Does the effectiveness of interventions for children with intellectual disability differ by level of cognitive impairment?

Intervention reports will describe subgroup analyses based on characteristics such as severity of disability, age, gender, school level, and setting in which intervention was delivered; immediate versus sustained effects (maintenance); and the magnitude of gains (e.g., half-year gain in reading or acquisition of five sight words).

Key Definitions

Intellectual Disability. This review adopts the definition of intellectual disability (mental retardation) identified in the **Individuals with Disabilities Education Improvement Act of 2004 (IDEA 2004)**. IDEA is a federal law ensuring services to children with disabilities throughout the nation. Within IDEA, states and public agencies provide early intervention, special education, and related services to eligible infants, toddlers, children, and youth with disabilities. Children and youth (ages 3 to 21) receive special education and related services under IDEA Part B. IDEA includes 14 specific categories under which a child may be found eligible for special education and related services: (1) autism, (2) deaf-blindness, (3) deafness, (4) developmental delay, (5) emotional disturbance, (6) hearing impairment, (7) intellectual disability (formerly mental retardation), (8) multiple disabilities, (9) orthopedic impairment, (10) other health impairment, (11) specific learning disability, (12) speech or language impairment, (13) traumatic brain injury, and (14) visual impairment, including blindness.

Consistent with the IDEA eligibility categories, this review examines the evidence for interventions developed for and implemented with students served under the IDEA categorical area of *intellectual disability*. IDEA defines intellectual disability as “significant subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior and manifested during the developmental period that adversely affects a child’s educational performance” (34 C.F.R., Sec. 3000. 7 [b] [5]).

It should be noted that since the 2004 reauthorization of IDEA, there has been a shift in terminology used in reference to people previously referred to as having mental retardation. This shift to the term *intellectual disability* has occurred to align the terminology in the United States with terminology elsewhere in the world; to reflect more current understandings of disability that emphasize personal strengths, rather than deficits; and to view disability in the context of a person-environment fit model. Readers can reference Schalock et al. (2007), Wehmeyer et al. (2008), and Thompson et al. (2009) for documentation on the shift in terminology. Schalock et al. (2007) emphasized, however, that although the terminology has changed, the operational definition of the construct has not, and that it should be understood that “this term [i.e., intellectual disability] covers the same population of individuals who were diagnosed previously with mental retardation in number, kind, level, type, and duration of the disability and the need of people with this disability for individualized services and supports,” and that “every individual who is or was eligible for a diagnosis of mental retardation is eligible for a diagnosis of intellectual disability” (p. 116).

Most major organizations associated with the condition have changed their names to reflect the new terminology, including the President’s Committee for People with Intellectual Disability (formerly the President’s Committee on Mental Retardation) and the American Association on Intellectual and Developmental Disabilities (AAIDD, formerly the American Association on Mental Retardation). The term was also changed in the 11th edition of the AAIDD *Intellectual Disability: Definition, Classification, and Systems of Support* manual (Schalock et al., 2010), used to diagnose the condition worldwide. The manual is the most current reference for defining the construct; it defines intellectual disability as “characterized by significant limitations both in intellectual functioning and in adaptive behavior as expressed in conceptual, social, and practical adaptive skills. This disability originates before age 18” (p. 1). In substance and content, this definition is virtually the same as the definition used by IDEA, both referring to limitations in intellectual functioning and adaptive behavior occurring in the developmental period. In all cases in which this protocol refers to students with intellectual disability, it refers to students served under the IDEA categorical area of mental retardation. Finally, legislation signed by the President in the Fall of 2010 replaced the term “mental retardation” with “intellectual disability” in all federal Acts pertaining to disability, including IDEA.

The research literature, however, may use the terms *mental retardation*, *intellectual disability*, *severe disability*, *developmental disability*, or *cognitive disability*. If a term other than *mental retardation* or *intellectual disability* is used, sufficient information must be provided to confirm that the participant’s intellectual functioning is consistent with the criteria for eligibility for services under the categorical area of intellectual disability. Although a deficit in adaptive behavior is a required criterion for diagnosis with intellectual disability, specific scores are rarely reported in research and so will not be required to confirm eligibility for inclusion in this review. Evidence may include the report of an IQ score that is two or more standard deviations below the mean or classification by a school system of intellectual disability (mental retardation). For example, the

researchers may report in a study that the students receive special education services for students with intellectual disability.

Outcome Domains. Outcomes addressed by school-based interventions within the field of intellectual disability include academic, functional, social-emotional and communicative skills. Although functional abilities outcomes can be further delineated (e.g., daily living skills, self-care), we expect there is some overlap in interventions used in school-based programs. Although the domains covered include skills that are relevant to transitions after secondary education, this review will exclude outcomes measuring those transitions (e.g., to post-secondary education, integrated employment, or independent living).¹ Thus, relevant classes of outcomes for this review include a focus on the following:

- Reading (e.g., comprehension, sight words, vocabulary, alphabetic knowledge)
- Early Literacy (e.g., text awareness, picture identification, listening comprehension)
- Math (e.g., computation, data analysis, geometry, measurement, money use)
- Science (e.g., chemistry, earth science, biology)
- Self-Care/Daily Living (e.g., cooking, dressing, eating, toileting, housekeeping)
- Community (e.g., street crossing, use of bank, purchasing, eating in restaurant)
- Social-Emotional (e.g., social skills, peer interaction, use of functional communication to replace problem behavior)
- Self-Determination (e.g., goal setting, self-management, problem solving, decision making, self-advocacy, choice making)
- Communication/Language (e.g., use of augmentative assistive communication [AAC], conversation, requesting, labeling)

¹ Although they are not included at this time, it is possible that the protocol could be expanded to include them at a later date.

ELIGIBILITY CRITERIA AND EVIDENCE STANDARDS

Populations to Be Included

This review includes interventions for children ages 5 to 21 who are eligible for special education services as students with intellectual disability (formerly mental retardation) under IDEA. A study is eligible if the sample students have intellectual disability and are designated by their school as eligible for special education services. If a term other than *mental retardation* or *intellectual disability* is used (e.g., *severe developmental disability*), sufficient information must be provided to confirm that participants' intellectual functioning is consistent with the criteria for eligibility for services under the categorical area of intellectual disability. Evidence may include explicit confirmation that students are eligible for special education services because of intellectual disability or the report of an IQ score that is two or more standard deviations below the mean (score of 69 or below). If an intervention appears to be designed for students with severe developmental disabilities but the study does not identify the population as students with intellectual disability per se, information about the study population will be requested from the study author(s).

This review focuses on the effectiveness of interventions for children with intellectual disability. In studies including children with other disabilities, the review will focus on findings for the subgroup of children with intellectual disability. If only aggregate findings are available, at least 50% of the study sample must be composed of children with intellectual disability or, on average, the children must meet the definition for having intellectual disability for the study to be included in the review. In comparison group studies, the intervention and comparison groups must include similar percentages of students with intellectual disability. In single-case research (SCD), the review will focus only on data for the individual students with intellectual disability. If the sample for the SCD is a group of students, then at least half the group must be students with intellectual disability.

If studies of an intervention have been conducted primarily with children with one level of cognitive impairment, the review will note that the effectiveness of the intervention is known only for children with "mild," "moderate," or "severe" intellectual impairment.

When results are available for the *subgroups of children* defined by the following characteristics, they will be documented in the intervention report: age, gender, socioeconomic status, race/ethnicity, English language learners, co-morbidity, and severity of disability.

When results are available for the *subgroups of settings* based on the following characteristics, they will be documented in the intervention report: location (urban, suburban, rural), setting (special education class, general education class, community, other), and staff education/qualifications or training (e.g., certification or years of experience).

Types of Interventions to Be Included

The overall goal of the review is to inform educators about impacts of interventions for students with intellectual disability that impact the specified outcomes areas and that (1) in a school; (2) in other locations if implemented under the direction of, or in collaboration with, a school program funded through the Individuals with Disabilities Education and Improvement Act (IDEA); or (3) by a researcher if the intervention could clearly be used in a typical school-age program as

determined by the principal investigator (PI). Interventions must have as their primary goal the acquisition of social, academic, social-emotional, or communicative skills. Skill acquisition is distinguished from therapeutic outcomes (e.g., range of motion) and from reductions in behavior problems without skill acquisition (e.g., reduction in self-injury that does not include instruction in replacement behavior to achieve the same function). For example, if a student engages in self injury to escape an unwanted task (escape is the function), a study that included teaching the student to use an AAC system to ask for a break (to address function of escape) would be included. A study that used a strategy simply to reduce the self injury would not be included. Interventions may include branded curricula and specific treatments such as time delay, peer tutoring, or computer-assisted instruction.

The types of interventions that are eligible for the review include the following:

- *Academic Interventions.* Academic interventions target reading/literacy, mathematics, science, or social studies. These interventions may be aimed at learning core content typical of the general curriculum or functional academics such as sight words or money use. When the focus is on functional academics, this category will be intertwined with functional interventions.
- *Functional Interventions.* Functional interventions target skills for overall functioning in home, job, leisure activities, and the community. These may target mastering a specific activity such as crossing the street or broader adaptive behaviors such as self-advocacy or choice making. Priority will be given to interventions aimed to *teach* self-care, daily living activities, job skills, use of community resources, leisure activities, fitness, and self-determination (e.g., choice making, goal setting, decision making) rather than those that support or create opportunities in these areas.
- *Social Skills Interventions.* Social-emotional skills interventions target decreasing problem behavior and teaching specific social skills. These may include functional behavioral assessments (FBAs) that also include a plan for increasing a social or communicative alternative skill. (FBAs used to study or document the function of the behavior without an intervention plan will not be included.) These also include plans to promote interaction with peers and interventions that teach specific social responses.
- *Communication/Language Interventions.* Communication and language interventions target skills for expressive or receptive communication with a partner. These include both speech and augmentative and alternative communication (AAC) interventions. Priority will be given to interventions that focus on outcomes associated with the application of new skills to achieve a pragmatic function (e.g., converse, make a request, provide information) rather than to those that focus on the form of the communication (e.g., articulation, learning to activate a switch). While the form of communication is important for students with intellectual disability, this review will focus on interventions that teach them to apply these new forms to pragmatic functions since without these applications students may not generalize.

The review will not include studies of transition services, defined under IDEA as “a coordinated set of activities that is designed to ... facilitate the child’s movement from school to post-school activities, including post-secondary education, vocational education, integrated employment (including supported employment), continuing and adult education, adult services, independent living, or community participation.” At a later date the protocol may be expanded to include such services.

To be reviewed, education interventions for children with intellectual disability must be *replicable*. If the intervention is branded, information about how to obtain the intervention must be available. Studies of interventions that are not branded must describe the intervention, including the skill(s) being targeted, the approach to enhancing the skill(s), the target population, components or features of the intervention that were implemented, characteristics of the settings in which it was implemented, the duration and intensity of the intervention, and the characteristics and training of the individuals administering the intervention.

Types of Research Studies to Be Included

To be included in the review, a research study must meet the following relevancy criteria:

Time frame relevance. The study must have been publicly released in 1990 or later and obtained by the WWC prior to drafting the intervention report. This time frame was established in order to define a realistic scope of work for the review.

Study design relevance. Only empirical studies using quantitative methods and inferential statistical analysis and that take the form of a randomized controlled trial (RCT) or use a regression-discontinuity (RD) design, a quasi-experimental matched comparison group design (QED), or a single-case design (SCD) are eligible for this review.

Outcome relevance. Studies in this topic area are required to focus on student outcomes, not teacher outcomes or other outcomes, and must include at least one relevant student outcome for which adequate content validity and reliability (as defined below) have been demonstrated. Studies that focus on outcomes measured in languages other than English are excluded (e.g., Spanish language skills).

Outcomes for Students with Intellectual Disability

To be eligible, an outcome must be in a relevant domain, not be overlapped, and meet standards of reliability and validity.

Outcomes domains. To be included in the review, a study must include at least one relevant student outcome that is intentionally targeted by the intervention and measured directly by administering an assessment to the student or conducting an observation of the student. Findings in WWC reviews report only on these outcomes. Relevant outcomes are those that fall into the following domains (see examples given earlier):

- Reading
- Early Literacy
- Math
- Science
- Self-Care/Daily Living
- Community
- Social-Emotional
- Self-Determination
- Communication/Language

Alignment. The alignment between the outcome and the intervention is another factor considered in the review. Outcome measures that are closely aligned or tailored to the intervention are likely to demonstrate larger effect sizes than those that are less closely aligned with the intervention when a group comparison is used. When the outcome measure includes some of the same materials (such as books or passages) that are used in the intervention or is administered to the intervention group as part of the intervention, it is generally considered to be overaligned with the intervention. Outcome measures that are overaligned with the intervention in group comparison studies will not be included in determining an intervention's ratings for this review.

However, sometimes the target response is simple recall, identification, or memorization, rather than mastery of the concept. For example, the target response may be identification of a set of sight words or memorization of state capitals. These *will* be considered as appropriate outcome measures to use in determining both effectiveness of the intervention and the effect size. When simple recall, identification, or memorization is the primary target response and dependent variable, the researcher may still assess untrained materials as a secondary generalization measure. Evidence of generalization strengthens the study's demonstration of effectiveness. Additionally, the demonstration of maintenance of the target skills for two or more weeks after intervention provides additional information on the intervention's effectiveness.

Reliability and validity. The study must include at least one child outcome measure with evidence of face validity and, for outcomes that are tests or scales, sufficient score reliability assessed using the following standards determined by the WWC. If the score reliability of each outcome measure is not specified in the research article, data from the test's or scale's publisher or other sources may be used to establish the score reliability of an outcome measure for the study population. If studies did not analyze the score reliability of outcome measures using study data, and analyses by test publishers or other researchers did not include children with disabilities, any other available evidence of score reliability and validity of the measure for the study population will be considered, and a decision about the adequacy of the outcome measure will be made on a case-by-case basis in consultation with experts.

For group design studies:

- Internal consistency score reliability: minimum of 0.60
- Temporal stability/test-retest score reliability: minimum of 0.40
- Inter-rater score reliability: minimum of 0.50 (percentage agreement, correlation, Kappa)

For single-case research:

- The outcome variable must be measured systematically over time by more than one assessor, and the study needs to collect inter-assessor agreement in all phases and at least 20% of all sessions (total across phases) for a condition (e.g., baseline, intervention).

If an outcome measure is composed of different tests for different children in the sample, it will be considered a valid outcome if the following criteria are met:

- The tests purport to measure a similar construct and were standardized on a similar population, as reflected in the test manual or empirical studies focused on the test.
- The tests must meet the thresholds for reliability described above.

- There must be clear rules for which test is administered to which child, and the rules must be applied in the same way to the treatment and control groups.
- The distribution of tests administered at baseline to the treatment and control groups must be similar.

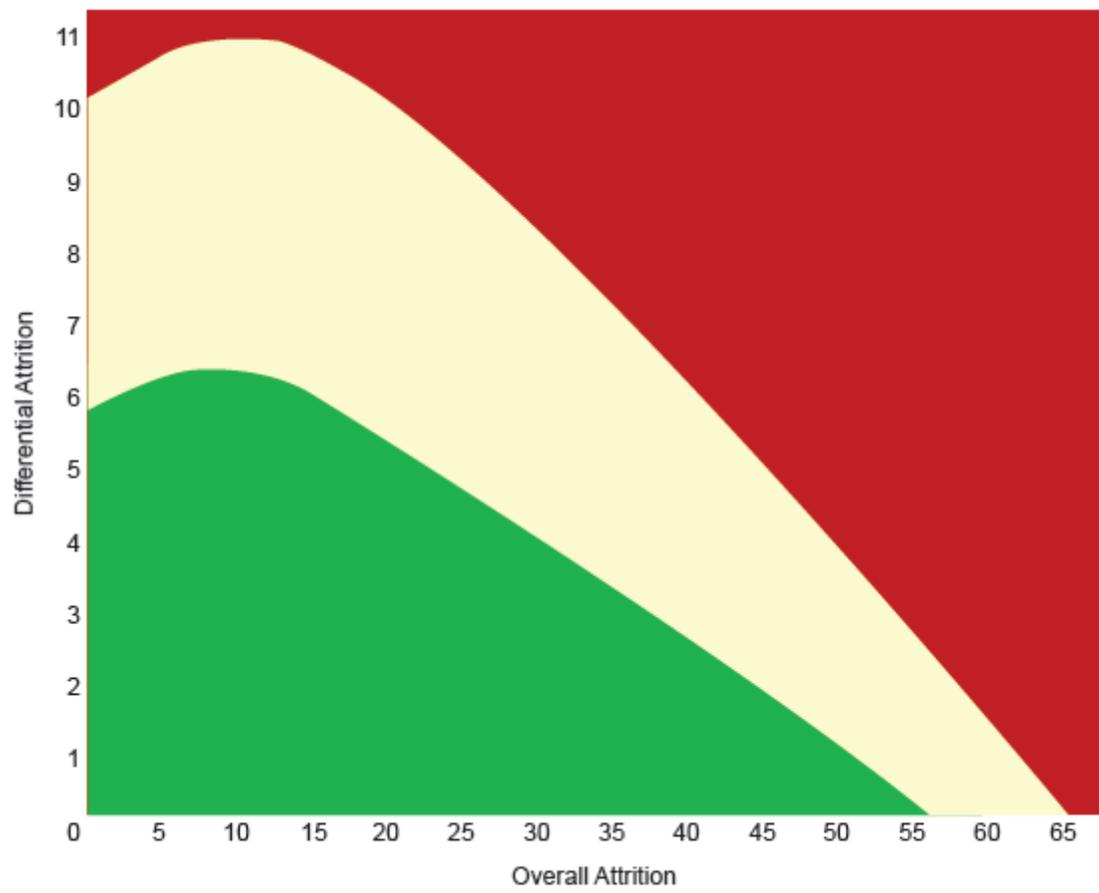
If information necessary to apply these criteria is not available in the article, an author query will be initiated to obtain the information.

Attrition in RCTs and RDs

As described in the *WWC Procedures and Standards Handbook (version 2.0)*, the WWC is concerned about overall and differential attrition from the intervention and comparison groups for RCTs, as both contribute to the potential bias of the estimated effect of an intervention. The attrition bias model developed by the WWC will be used in determining whether a study meets WWC evidence standards (see Appendix A of the *Handbook*).

When the combination of overall and differential attrition rates causes an RCT study to meet the liberal attrition standard (illustrated heuristically by the green and white areas on the diagram shown below), the attrition will be considered “low” and the level of bias acceptable. This reflects the assumption that most attrition in studies of intellectual disability interventions for children with disabilities is due to exogenous factors, such as parent mobility and absences on the days that assessments are conducted. However, for RCTs with combinations of overall and differential attrition rates in the red area, the attrition will be considered “high” with potentially high levels of bias and, therefore, must demonstrate equivalence.

Many studies reviewed by the WWC are based on designs with multiple levels. Bias can be generated not only from the loss of clusters (such as schools), but also from sample members within the clusters (such as students), if those sample members attrit due to their treatment status. The attrition standard applies to both levels. To meet the standard, a study must first pass at the cluster level, using the designated attrition boundary. Second, the study must pass at the subcluster level, using the same attrition boundary, *with attrition based only on the clusters still in the sample*. That is, the denominator for the subcluster attrition calculation includes only sample members at schools or classrooms that remain in the study after cluster attrition.



Highest Level of Differential Attrition Allowable to Meet the Attrition Standard Under the Liberal Attrition Standard

Overall Attrition	Allowable Differential Attrition	Overall Attrition	Allowable Differential Attrition
0	10.0	34	7.4
1	10.1	35	7.2
2	10.2	36	7.0
3	10.3	37	6.7
4	10.4	38	6.5
5	10.5	39	6.3
6	10.7	40	6.0
7	10.8	41	5.8
8	10.9	42	5.6
9	10.9	43	5.3
10	10.9	44	5.1
11	10.9	45	4.9
12	10.9	46	4.6
13	10.8	47	4.4
14	10.8	48	4.2
15	10.7	49	3.9
16	10.6	50	3.7
17	10.5	51	3.5
18	10.3	52	3.2
19	10.2	53	3.0
20	10.0	54	2.8
21	9.9	55	2.6
22	9.7	56	2.3
23	9.5	57	2.1
24	9.4	58	1.9
25	9.2	59	1.6
26	9.0	60	1.4
27	8.8	61	1.1
28	8.6	62	0.9
29	8.4	63	0.7
30	8.2	64	0.5
31	8.0	65	0.3
32	7.8	66	0.0
33	7.6	67	-

Group Equivalence in RCTs/RDs with High Attrition and QEDs

If the study design is an RCT or RD with high levels of attrition or a QED, the study must demonstrate baseline equivalence of the intervention and comparison groups for the analytic sample. The onus for demonstrating equivalence in these studies rests with the authors. Sufficient reporting of pre-intervention data should be included in the study report (or obtained from the study authors) to allow the review team to draw conclusions about the equivalence of the intervention and comparison groups. Pre-intervention characteristics can include the outcome measure(s) administered prior to the intervention or other measures that are not the same as, but are highly related to, the outcome measure(s).

For this topic area, it is possible for a study to meet evidence standards in one or more domains and not in others. Thus, rules for establishing baseline equivalence should be applied *within each domain*.

Groups are considered equivalent if the reported differences in pre-intervention characteristics of the groups are less than or equal to one-quarter of the pooled standard deviation in the sample, regardless of statistical significance. However, if differences are greater than 0.05 standard deviations and less than or equal to one-quarter of the pooled standard deviation in the sample, the analysis must control analytically for the individual-level pre-intervention characteristic(s) on which the groups differ. If pre-intervention differences are greater than 0.25 for *any* of the pre-intervention characteristics, the study does not meet standards for that domain.

Given the potential for selection bias in QEDs, the possibility that the intervention and comparison groups were drawn from different populations is also a concern. Fundamental differences in the settings from which the intervention and comparison groups in a QED study were drawn and baseline differences in the characteristics of the intervention and comparison groups may indicate that the children in the two groups were drawn from different populations, even if they are equivalent on pretest measures. Statistically significant or large (half a standard deviation or more) differences in the characteristics and settings of children in the intervention and comparison groups are evidence that the groups were drawn from different populations, and the study does not meet WWC Evidence Standards. The following are important characteristics and settings to consider when they are reported:

- Percentage of children with intellectual disability
- Percentage of children with a specific severity of disability (mild, moderate, severe)
- Percentage of children from low-SES families
- Percentage of children from different racial groups

Statistical and Analytical Issues

RCT studies with low attrition do not need to use statistical controls in their analyses, although statistical adjustment for well-implemented RCTs is permissible and can help generate more precise effect-size estimates. For RCTs, the effect-size estimates will be adjusted for differences in pre-intervention characteristics at baseline (if available) using a difference-in-differences method if the authors did not adjust for pretest (see Appendix B of the *Handbook*). Beyond the

pre-intervention characteristics required by the equivalence standard, statistical adjustment can be made for other measures in the analysis as well, although they are not required.

For the WWC review, the preference is to report on and calculate effect sizes for post-intervention means adjusted for the pre-intervention measure. If a study reports both unadjusted and adjusted post-intervention means, the WWC review will report the adjusted means and unadjusted standard deviations. If adjusted post-intervention means are not reported, they will be requested from the author(s).

The p-value of group differences will be recalculated if (a) the study authors did not calculate statistical significance, (b) the study authors did not account for clustering when there is a mismatch between the unit of assignment and unit of analysis, or (c) the WWC implements a difference-in-differences adjustment with an RCT. Otherwise, the review team will accept the calculations provided in the study. For purposes of assessing statistical significance, the p-value will be adjusted for multiple comparisons when appropriate.

When a misaligned analysis is reported (i.e., the unit of analysis is not the same as the unit of assignment) and the author is not able to provide a corrected analysis, the effect sizes computed by the WWC will incorporate a statistical adjustment for clustering. The default intra-class correlations used for this review are 0.20 for cognitive, language, literacy, and math outcomes, and 0.10 for social-emotional development and behavior, functional abilities, and motor development outcomes. For an explanation about the clustering correction, see Appendix C of the *WWC Procedures and Standards Handbook*.

When multiple comparisons are made (i.e., multiple outcome measures are assessed within an outcome domain in one study) and not accounted for by the authors, the WWC accounts for this multiplicity by adjusting the reported statistical significance of the effect using the Benjamini-Hochberg correction. See Appendix D of the *Handbook* for the formulas the WWC uses to adjust for multiple comparisons.

All standards apply to overall findings as well as analyses of subsamples.

Single-Case Research

The following criteria apply for single-case research:

- The independent variable (i.e., the intervention) must be systematically manipulated, with the researcher determining when and how the independent variable conditions change.
- The outcome variable must be measured systematically over time by more than one assessor, and the study needs to collect inter-assessor agreement in all phases and at least 20% of all sessions (total across phases) for a condition (e.g., baseline, intervention). Studies that collect inter-assessor agreement in all phases and at least 20% of all sessions (total across phases), but in which it is not clear whether the 20% by condition requirement is met, will be included in intervention reports with a footnote.
- The study must include at least three attempts to demonstrate an intervention effect at three different points in time or with three different phase repetitions.

- For a phase to qualify as an attempt to demonstrate an effect that Meets Evidence Standards, the phase must have a minimum of five data points.
- For a phase to qualify as an attempt to demonstrate an effect that Meets Evidence Standards with Reservations, the phase must have a minimum of three data points
- Exception: For the purposes of this review there may be occasions when fewer than three data points in a phase will not require the study to be rated as Not Meeting Standards. The following are exceptions:
 - Interventions for severe problem behavior such as aggression and self-injury for which extended initial baselines or reversal conditions pose serious ethical and procedural concerns.
 - Interventions on “zero baseline” behaviors when there is no logical reason to believe that further assessment would yield other than zero baseline performance. An example of such a zero baseline performance may be when a child is asked to provide a verbal label for an object (“what is this?”) and consistently provides no response to the request because the child has little to no language and has never been observed to label the item or similar items. In such cases, a multiple probe design may be used in order to alleviate potential “punishing” effects of repeated failure experiences.

LITERATURE SEARCH METHODOLOGY

The literature search strategy for the WWC Education Interventions for Children with Intellectual Disability review has two components. The review team conducts a keyword search to identify interventions with studies that may be eligible for review. The team also conducts focused intervention searches to ensure that all potentially eligible studies of the identified interventions are found. Each type of search is described below.

Keyword Search

Primary Objective. To identify interventions with potentially eligible studies and assess the likely extent of studies on each intervention, so that interventions can be prioritized for review. The focus will be on breadth rather than depth. Subsequent searches will focus on the selected interventions and be designed to capture ALL potentially eligible studies, including any that the keyword search did not identify.

Search Strategy. The following keywords are meant to capture literature that falls within the scope of the protocol. Given the objective stated above, targeted outcomes and study design terms are included to focus the search on identifying literature that will support an intervention report. The keyword list is followed by a list of databases that are searched.

Key Word List

Intellectual Disability:

Intellectual*Disab* OR
Intellectual*Handicap* OR
Mental* Retard* OR
Mental* Handicap* OR
Cognitive* Disab* OR
Developmental* Disorder* OR
Developmental* Disab* OR
Developmental* Delay* OR
Severe* Disab* OR
Neurodevelopment* Disab* OR
Down* Syndrome OR
Angelman Syndrome OR
Fragile X Syndrome OR
Fetal Alcohol Syndrome OR
Williams Syndrome OR
Rett Syndrome OR
Prader-Willi Syndrome

AND

Interventions:

Intervention* OR
Treatment* OR
Program* OR
Strategy* OR

Instruct* OR
Model OR
Practice OR
Teach* OR
Therap*
Train* OR
Technique* OR
Approach*

AND

Study Design:

Control group OR
Comparison group OR
Matched groups OR
Treatment OR
Random* OR
Assignment OR
Baseline OR
Experiment OR
Evaluation OR
Impact OR
Effectiveness OR
Causal OR
Posttest OR post-test OR
Pretest OR pre-test OR
Randomized Control Trial OR RCT OR
Quasi-experimental Design OR QED OR
Regression discontinuity OR
Single case OR
Single subject OR
Single-case OR
Single-subject OR
ABAB design OR
Alternating treatment* OR
Multi-element* OR
Simultaneous treatment OR
Multiple baseline*OR
Multiple probe*OR
Meta analysis

Databases

The core list of electronic databases that are searched across topics includes the following:

ERIC. Funded by the U.S. Department of Education (ED), ERIC is a nationwide information network that acquires, catalogs, summarizes, and provides access to education information from all sources. All ED publications are included in its inventory.

PsycINFO. PsycINFO contains more than 1.8 million citations and summaries of journal articles, book chapters, books, dissertations, and technical reports, all in the field of psychology. Journal

coverage, which dates back to the 1800s, includes international material selected from more than 1,700 periodicals in more than 30 languages. More than 60,000 records are added each year.

Campbell Collaboration. C2-SPECTR (Social, Psychological, Educational, and Criminological Trials Register) is a registry of more than 10,000 randomized and possibly randomized trials in education, social work and welfare, and criminal justice.

Dissertation Abstracts. As described by Dialog, Dissertation Abstracts is a definitive subject, title, and author guide to virtually every American dissertation accepted at an accredited institution since 1861. Selected master's theses have been included since 1962. In addition, since 1988, the database has included citations for dissertations from 50 British universities that have been collected by and filmed at the British Document Supply Center. Beginning with DAIC Volume 49, Number 2 (Spring 1988), citations and abstracts from Section C, Worldwide Dissertations (formerly European Dissertations) have been included in the file. Abstracts are included for doctoral records from July 1980 (Dissertation Abstracts International, Volume 41, Number 1) to the present. Abstracts are included for master's theses from spring 1988 (Masters Abstracts, Volume 26, Number 1) to the present.

Academic Search Premier. This multidisciplinary database provides full text for more than 4,500 journals, including full text for more than 3,700 peer-reviewed titles. PDF backfiles to 1975 or further are available for well over 100 journals, and searchable cited references are provided for more than 1,000 titles.

EconLit. EconLit, the American Economic Association's electronic database, is the world's foremost source of references to economic literature. The database contains more than 785,000 records from 1969 to the present. EconLit covers virtually every area related to economics.

Business Source Corporate. This database contains full text from nearly 3,000 quality business and economics magazines and journals (including full text of many only abstracted in other sources we search). Information in this database dates as far back as 1965.

SocINDEX with Full Text. SocINDEX with Full Text is the world's most comprehensive and highest-quality sociology research database. The database features more than 1,986,000 records with subject headings from a 19,600+ term sociological thesaurus designed by subject experts and expert lexicographers. SocINDEX with Full Text contains full text for 708 journals dating back to 1908. This database also includes full text for more than 780 books and monographs, and full text for 9,333 conference papers.

EJS E-Journals. E-Journals from EBSCO host[®] provide article-level access for thousands of E-Journals available through EBSCO's Electronic Journal Service (EJS). This resource covers journals MPR subscribes to.

Education Research Complete. Education Research Complete is the definitive online resource for education research. Topics covered include all levels of education from early childhood to higher education, and all educational specialties, such as multilingual education, health education, and testing. Education Research Complete provides indexing and abstracts for more than 1,840 journals, as well as full text for more than 950 journals, and includes full text for more than 81 books and monographs, and for numerous education-related conference papers.

WorldCat. WorldCat is the world's largest network of library content and services. It allows users to simultaneously search the catalogs of more than 10,000 libraries, containing more than 1.2 billion books, dissertations, articles, CDs, and other media.

Cochrane Central Register of Controlled Trials. Cochrane Controlled Trials Register is a bibliography of controlled trials identified by contributors to the Cochrane Collaboration and others, as part of an international effort to hand-search the world's journals and create an unbiased source of data for systematic reviews.

Cochrane Database of Systematic Reviews. Cochrane Database of Systematic Reviews contains full-text articles, as well as protocols focusing on the effects of health care. Data include evidence-based medicine and are often combined statistically (with meta-analysis) to increase the power of the findings of numerous studies, each too small to produce reliable results individually.

Database of Abstracts of Reviews of Effects. Database of Abstracts of Reviews of Effects (DARE) includes abstracts of published systematic reviews on the effects of health care from around the world, which have been critically analyzed according to a high standard of criteria. This database provides access to quality reviews in subjects for which a Cochrane review may not yet exist.

Cochrane Methodology Register. The Cochrane Methodology Register (CMR) is a bibliography of publications that report on methods used in the conduct of controlled trials. It includes journal articles, books, and conference proceedings; these articles are taken from the MEDLINE database and from hand searches. The database contains studies of methods used in reviews and more general methodological studies that could be relevant to anyone preparing systematic reviews. CMR records contain the title of the article, information on where it was published (bibliographic details), and in some cases, a summary of the article. CMR is produced by the UK Cochrane Centre, on behalf of the Cochrane Methodology Review Group.

“Fugitive” or “Grey” Literature

In addition to the keyword search, the review team seeks to identify other relevant studies through the following approaches:

- Public submissions:
 - 1) Materials submitted via the WWC website
 - 2) Materials submitted directly to WWC staff
- Solicitations made to key researchers by the review team
- Checking websites summarizing research on programs for children and youth (see Appendix), prior reviews, and research syntheses (i.e., using the reference lists of prior reviews and research syntheses to make sure key studies have not been omitted).
- Searches of the websites of all the developers of relevant interventions or practices for any research or implementation reports.

References resulting from these searches will be screened and sorted by intervention.

Intervention Search

Primary Objective. To identify ALL effectiveness studies conducted for a specific intervention identified in the keyword search.

Search Strategy

- Conduct standard library searches of the intervention name.²
- Scan references to identify possible synonyms for the intervention in the literature. Conduct standard library searches of these terms.
- Once some potentially eligible studies are identified, request full text and review the reference lists to cross-check search results. Similarly, review relevant literature reviews. Revise search terms as needed.
- Identify seminal researchers associated with the intervention. Conduct full-text searches of the researcher name combined with the intervention name.
- Identify seminal studies of the intervention and conduct searches of the associated citation.

All references resulting from these searches will be screened for eligibility.

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² A standard library search consists of searching titles and abstracts in each of the databases described above.

Appendix. Websites to Be Searched

Abt Associates
Alliance for Excellent Education
American Association on Intellectual and Developmental Disabilities
American Enterprise Institute
American Institutes of Research
American Psychological Association, Division 33 Intellectual Disability
American Speech-Language-Hearing Association (ASHA)
American Youth Policy Forum
Appalachian Education Laboratory (Edvantia)
Association for University Centers on Disability
Best Evidence Encyclopedia
Broad Foundation (Education)
Brookings Institution
Carnegie Corporation of New York
Center for Comprehensive School Reform and Improvement
Center for Data-Driven Reform in Education
Center for Research and Reform in Education
Center for Research in Educational Policy (CREP)
Center for Social Organization of Schools
Center on Education Policy
Center on Instruction
Chapin Hall Center for Children at the University of Chicago
Coleman Institute for Cognitive Disabilities
Congressional Research Service (via OpenCRS.org)
Council for Exceptional Children
Council for Learning Disabilities
Education Resources Institute
Government Accountability Office (GAO)
Harvard Family Research Project
Harvard Graduate School of Education
Heritage Foundation
Hoover Institution
Institute for Higher Education Policy
Institute for Public Policy and Social Research (IPPSR)
International Association for the Scientific Study of Intellectual Disabilities
International Rett Syndrome Association
Johns Hopkins University School of Education
Joseph P. Kennedy Jr. Foundation
Learning Disabilities Association of America
Learning Point Associates
Mathematica Policy Research

MDRC
Mid-continent Research for Education and Learning
National Association of State Boards of Education
National Association of State Directors of Special education
National Center for Learning Disabilities
National Center on Secondary Education and Transition
National Dissemination Center for Children with Disabilities
National Dissemination Center for Children with Disabilities (NICHCY)
National Down Syndrome Congress
National Down Syndrome Society
National Fragile X Foundation
National Governors' Association
National Institute for Early Education Research (NIEER)
National Reading Panel
National Secondary Transition Technical Assistance Center
Northwest Regional Education Lab
Pacific Resources for Education and Learning (PREL)
Policy Studies Associates
PolicyArchive
President's Committee for People with Intellectual Disabilities
Promising Practices Network
Public Education Network
Public Policy Research Institute at Texas A&M University
Public/Private Ventures (PPV)
RAND
Regional Education Lab Appalachia
Regional Educational Laboratory Northeast and Islands
Southeast Regional Education Lab (included in the SERVE Center)
Southwest Educational Development Laboratory (SEDL)
Special Olympics International
SRI
TASH
The Arc of the United States
Thomas B. Fordham Institute
U.S. Department of Education (includes Institute for Education Sciences, National Center for Special Education Research, etc.)
Urban Institute
WestEd (includes REL West)