

WHAT WORKS CLEARINGHOUSETM

Study Review Protocol

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U.S. Department of Education

A Publication of the National Center for Education Evaluation at IES

The What Works Clearinghouse (WWC) Study Review Protocol accompanies the <u>WWC Procedures and</u> <u>Standards Handbook, Version 5.0</u>, and guides reviews of studies by the WWC. The WWC uses this protocol to review all studies, including those cited as evidence for U.S. Department of Education grant competitions, studies that were funded by the Department, and studies identified for systematic reviews of evidence based on a search of the research literature in a particular topic area. As articulated in the Handbook (p. 10), when the Study Review Protocol is used to review studies for systematic reviews, an accompanying <u>topic area synthesis protocol</u> will provide criteria for the literature search; guidance on how to identify and prioritize relevant studies for review and inclusion in evidence synthesis products; and guidance on intervention, sample, and outcome eligibility criteria for the synthesis.

ELIGIBILITY CRITERIA

The Handbook specifies the <u>eligibility criteria</u> for studies of educational interventions to be reviewed by the WWC. The criteria include eligible <u>research reports</u>, eligible <u>research designs</u>, eligible <u>populations</u>, eligible <u>interventions</u>, and eligible <u>outcomes</u>. Findings that are not publicly available and/or are not included in a complete manuscript are not eligible for review.

Eligible Outcome Domains

The list of outcome domains below defines the domains that are eligible for review by the WWC and describes the types of outcome measures that would fall within each domain. The list of outcome domains is organized by broad categories and alphabetized within categories.

Several considerations apply across multiple outcome domains:

- **Outcome measure independence** is assessed for outcomes within domains marked with an asterisk (*) that relate to literacy or mathematics or broad measures of student achievement, as described in the subsequent <u>Outcome Measure Independence</u> section.
- **Quiz and exam scores within a course.** Scores below a course level, such as quiz and exam scores, are not eligible for review.
- **Course grades.** Course grades–including pass or fail–and grade point averages (GPAs) are always reviewed under the Course Performance domains. Number of credits earned are reviewed in Progressing in Pre-K–12 Education, Progressing in Developmental Education, or Progressing in College domains.

Academic Readiness, Knowledge, or Skills (Pre-K through Postsecondary)

- Academic Achievement–Postsecondary*: Academic measures based on broad standardized student assessments across multiple subjects, including at least two of literacy, mathematics, science, and social studies. This domain includes standardized achievement tests for postsecondary students, such as the LSAT, MCAT, GRE, and GMAT.
- Academic Achievement–Pre-K–12*: Academic measures in pre-k through Grade 12 based on broad standardized student assessments across multiple subjects, including at least two of literacy, mathematics, science, and social studies. This domain includes standardized achievement tests for students in grades pre-k–12 not falling into one of the subject-specific achievement domains, such as the ACT, SAT, and state-mandated tests.
- Algebra*: Ability to solve, graph, or write equations, systems of equations, and inequalities, as well as functions, exponents, polynomials, factoring, and quadratic equations.
- **Calculus and Precalculus*:** Differential calculus, concerning rates of change and slopes of curves, or integral calculus, concerning accumulation of quantities and the areas under and between curves. Precalculus topics include functions, complex numbers, vectors, and matrices. Trigonometry topics are also eligible under this domain, including trigonometric functions, angular formulas and relationships, and the unit circle. Note that right triangle trigonometry–such as the Pythagorean theorem–would fall under the <u>Geometry and Measurement</u> domain.
- **Cognition:** The process through which an individual obtains and processes knowledge or conceptual understanding, including abstract reasoning, concept formation, critical thinking, executive function skills, general problem solving, logical thinking, memory, metacognition, spatial ability, symbolic learning, and IQ.
- **Course Performance–Postsecondary:** Course grades–including pass or fail–and GPAs from one or more postsecondary courses. Performance in developmental and nondevelopmental college courses is eligible under this domain. As indicated in the *Handbook* (p. 27), when different institutions are included in the study, the same scale of GPA must be used across sites.
- **Course Performance–Secondary:** Course grades–including pass or fail–and GPAs for students in grades 6-12. As indicated in the *Handbook* (<u>p. 27</u>), when different schools or districts are included in the study, the same scale of GPA must be used across sites.
- **Data Analysis, Statistics, and Probability*:** The act of collecting, organizing, and displaying data to answer questions, as well as statistical methods to analyze data, making inferences and predictions based on data, and probability.
- **Expressive Communication*:** Communicating words or ideas using developmentally appropriate spoken English, assistive devices, sign language, or nonverbal cues.
- **Geometry and Measurement*:** Two-dimensional and three-dimensional geometric shapes and understanding properties, composition, and geometric relationships, including visualization, spatial reasoning, and geometric modeling, as well as understanding the attributes, units, systems, and processes of measurement, and applying techniques, tools, and formulas to determine measurements. Right triangle trigonometry–such as the Pythagorean theorem–also falls under this domain.

- Life Sciences (Biology, Environmental and Health Sciences): The structures and functions of living things at different scales; growth, development, and reproduction of organisms; information processing and behavior in organisms; matter and energy transfer in living things and ecosystems; inheritance of and variation in traits; natural selection and adaptation; evidence of common ancestry; biodiversity; how the physical environment and human activities affect living things; and the anatomy, physiology, nutrition, and health of animals and of humans.
- Literacy Achievement*: Content in two or more distinct literacy domains. Outcomes limited to
 the Vocabulary and Reading Comprehension domains are reviewed under <u>Reading</u>
 <u>Comprehension</u>; outcomes limited to multiple writing domains are reviewed under <u>Writing</u>
 <u>Quality</u>; and outcomes including either Expressive or Receptive Communication are reviewed
 under <u>Proficiency in the English Language</u>.
- Literature: Analysis of literary work, including fiction, poetry, drama, and nonfiction/informational texts such as biographical essays, from various periods, countries, and traditions, to understand the author's intended and implied meaning(s); identification of a work's structure, style, themes, and tone; identification and analysis of the author's vocabulary choices and use of symbolism, figurative language, imagery, and other rhetorical devices; and writing expository, analytical, or argumentative essays that analyze, interpret, or critique single texts or compare multiple texts.
- **Mathematics Achievement*:** Content in two or more of the mathematics domains. Also included in this domain are tests of mathematical understanding, procedures, and problem solving, as well as mathematics measures in early childhood education.
- **Numbers and Operations*:** Understanding numbers and integers, such as subitizing, estimation, number order, number combinations, counting, comparisons, operations, computing fluently, representing fractions and ratios, and understanding the base-ten number system and fractions.
- **Phonics and Related Alphabetics*:** Letter identification, phonemic awareness, phonics, phonological awareness, spelling, and print awareness for the English language.
- Physical Sciences (Astronomy, Chemistry, Earth and Space Sciences, Geology, and Physics): The properties of matter and changes in matter; force, motion, and interactions of forces; energy and energy transfer and conservation; relationship between energy and forces; properties of waves; electromagnetic radiation; structures, properties, and materials of Earth; tectonics; Earth's place in the solar system and the universe; changes in Earth over time; water, weather, and climate; energy in Earth systems; and paleontology.
- **Proficiency in a Language Other Than English*:** Ability to speak, comprehend, read, or write in a language other than English.
- Proficiency in the English Language*: Content in the Expressive Communication domain or the <u>Receptive Communication</u> domain combined with each other, or with one of the English literacy domains: <u>Phonics and Related Alphabetics</u>, <u>Reading Comprehension</u>, <u>Reading Fluency</u>, <u>Vocabulary</u>, <u>Writing Conventions</u>, and <u>Writing Quality</u>. Measures of acquiring the English language for students whose primary language is English may also fall under this domain in early childhood education.

- **Reading Comprehension*:** Understanding the meaning of written texts or passages in English, which may be combined with receptive or expressive vocabulary in the <u>Vocabulary</u> domain. This domain does not include tests of content knowledge.
- **Reading Fluency*:** Reading English words and text accurately, automatically, and with expression. This domain includes word fluency.
- **Receptive Communication*:** The ability to follow, process, and understand spoken English, sign language, facial expressions, body language, or nonverbal cues. This domain includes measures that assess a learner's ability to respond to comprehension questions after listening to a passage that has been read to them, to provide an accurate retelling of a passage, or to follow prompts or instructions.
- **Science Achievement:** Content in two or more of the science domains. Also included in this domain is general knowledge of science concepts, such as forming hypotheses and making predictions, control of variables, and planning and conducting observations and experiments.
- **Social Studies Achievement:** Outcomes in social studies disciplines, such as one or more of anthropology, civics, economics, geography, history, psychology, sociology, and world cultures.
- **Technology and Engineering:** The capacity to use, understand, and evaluate technology and technological principles and strategies needed to develop solutions and achieve goals. This domain includes computer science, information technology, technology and society, engineering design, maintenance and troubleshooting, computers and software, networking systems and protocols, computational thinking, and digital devices.
- **Visual and Performing Arts:** Knowledge, skills, and creativity in dance, music, theater, or the visual arts, such as painting, drawing, printmaking, sculpture, folk art, decorative arts, photography, video, film, computer imaging, graphic design, industrial design, and architecture.
- **Vocabulary*:** Understanding the meanings of written English words using receptive vocabulary or expressive vocabulary, whether oral or written.
- Writing Conventions: Using rules of standard English language, such as word usage, syntax/sentence structure, grammar, morphology/word inflections, language mechanics/capitalization and punctuation, handwriting quality, and spelling. When spelling skills are assessed on writing samples, they are included in this domain; otherwise, they are included in the <u>Phonics and Related Alphabetics</u> domain.
- Writing Quality: Writing effective, clear, well-organized text in English, such as narrative, informative, persuasive, or creative writing, including poetry. This domain includes measures of writing quality combined with measures in the <u>Writing Conventions</u> domain.

Pre-K-12 Progress and Completion

- **High School Completion:** Whether the student has earned a high school diploma or a recognized equivalent, such as obtaining passing scores on a state-approved high school equivalency test or passing the GED.
- **Progressing in Pre-K–12 Education:** Number of Carnegie units or credits the student has earned, earning credit for a particular required course or courses, whether the student was promoted to

the next grade, or highest grade completed. Measures within this domain should reflect practically meaningful benchmarks within the study context.

- **School Attendance:** Student- or school-level attendance outcomes, including school attendance rates, absenteeism, and tardiness at school. Examples include the number or proportion of days in attendance, measures of excessive or chronic absenteeism, and referrals for truancy.
- **Staying in School:** Whether the student has dropped out of pre-k–12 education or is still enrolled.

College Readiness, Progress, and Completion¹ (Secondary through Postsecondary)

- **College Application and FAFSA Completion**: Applying to a postsecondary institution, such as applying for financial aid, and the number or selectivity of admitted institutions. Measures within this domain should reflect practically meaningful benchmarks within the study context.
- **College Degree Attainment:** Completion of a postsecondary degree, certificate, or program. Industry-recognized certificates are in a separate domain.
- **College Enrollment:** Enrolling in or attending a postsecondary institution, such as actual enrollment in college, enrollment by institution type, full-time vs. part-time enrollment, and immediate vs. delayed enrollment. Measures within this domain should reflect practically meaningful benchmarks within the study context.
- **College Readiness**: Student preparedness for postsecondary education, such as meeting specific minimum coursework requirements for entry into postsecondary institutions; completing college requirements in high school, such as dual enrollment or Advanced Placement (AP) courses; being able to enroll in credit-bearing (non-developmental) college courses once at a postsecondary institution; and completing other key academic milestones. Measures within this domain should reflect practically meaningful benchmarks within the study context.
- **Progressing in College:** Progress toward the completion of a postsecondary degree, certificate, or program, such as number of college-level credits earned, number of terms of continuous enrollment, and postsecondary retention. Measures within this domain should reflect practically meaningful benchmarks within the study context. College credits completed during high school and non-college level credits, such as developmental credits, are not eligible under this domain.
- **Progressing in Developmental Education:** Completed required developmental education coursework or completed vs. did not complete the first college-level course in which remediation was needed. Measures within this domain should reflect practically meaningful benchmarks within the study context.

Workforce Outcomes

- **Earnings:** Income received from work. Earnings must be defined for those not employed as well those employed. Reviewers should document the time periods when the outcomes were collected.
- **Employment:** Indicator of any paid employment; number of months, quarters, or years employed; or number of hours worked in an average week. Employment must be defined for those

¹For domains in this category, "postsecondary institution" includes universities, colleges, community colleges, and trade schools.

not employed as well for those employed. Reviewers should document the time periods when the outcomes were collected.

- **General Employability Skills:** Skills that employers value in all employees, regardless of field, such as critical thinking, ability to work in teams, communication with coworkers or supervisors, self-management and initiative, and problem solving in work settings. Résumé development, completing job applications, and interviewing skills are also included in this domain.
- **Industry-Recognized Credential, Certificate, or License:** Examples of ways completion of an industry program might be operationally defined include certificate completion rates, nondegree award receipt rates, and certifications from third-party licensing or credentialing bodies.
- **Technical Skills Proficiency:** Technical skills at the occupation level, measured by standardized assessments aligned with industry-recognized standards, such as the National Council Licensure Examination (NCLEX), the National Council of Examiners for Engineering and Surveying (NCEES) Principles and Practice of Engineering (PE) exam, the Praxis tests, and National Counselor Examination (NCE). Measures must be recognized by the industry to be eligible for review in this domain.

Social, Emotional, Behavioral, and Mental Health Outcomes (Pre-K through Postsecondary)

- Academic Dispositions: Indicators that are focused on self-reported or assessed student attitudes toward academics or participation in school activities. Outcomes in this domain include academic growth mindset, academic motivation, academic or subject-specific self-efficacy, academic engagement, and academic grit. Measures are included in this domain if they reflect attitudes toward learning, as opposed to observable behaviors (Student Behavior), mental well-being (Mental Health), or schoolwide environment (School Climate).
- **Civic, Social, and Economic Participation:** A wide range of formal and informal activities and high-level skills beneficial for functioning within society. Example skills include information literacy and financial literacy. Activities include voting, volunteering, community gardening, and participating in other community activities or organizations. Measures could include records, assessments, or self-report. Basic life skills are included in the <u>Functional Skills</u> domain.
- **Functional Skills:** Skills needed to participate in developmentally appropriate routines and activities in the home or in community settings and support independent living. This could include outcomes such as demonstrating gross or fine motor skills, dressing, preparing and eating food, hygiene, cleaning, organizing, crossing the street, making a deposit or withdrawal from a bank, purchasing items, or using various forms of transportation. Measures may be based on a self-report, observation, or results from an assessment scale. Academic and employability skills are in separate domains. This domain is most relevant for interventions in special education, early childhood education, or adult education.
- **Mental Health:** Indicators that are primarily focused inward and reflect a student's emotional status and psychological well-being, and both positive and negative thoughts and feelings not tied specifically to academics. Outcomes in this domain include concepts such as anxiety, depression,

and loneliness, as well as emotional regulation, happiness, self-esteem, positive identity development, behavioral inhibition, and overall adjustment. Measures may be based on a selfreport, observation, or results from a clinical assessment scale. When measures include components of Mental Health and Academic Dispositions domains, review the measures under this domain.

- **Student Behavior:** Observable behaviors that conform or fail to conform to developmentally appropriate behavioral norms, rules, or expectations within school or during class, school, or community activities. Examples of positive and prosocial outcomes in this domain include paying attention, respecting and empathizing with others, self-regulation, social functioning, and time on task. Negative outcomes and externalizing behaviors in this domain include disruptive or impulsive behaviors such as interrupting others, peer rejection, and physical or verbal aggression; and problem behaviors such as cheating, lying, stealing, substance abuse, elopement or running away from home or school, or vandalism. Measures may be based on a self-report, observation, or results from an assessment scale. When measures include components of Student Behavior and Mental Health and/or Academic Dispositions domains, review the measures under this domain.
- **Student Discipline:** Documented consequences such as arrests, suspensions, number of office referrals, or expulsion from school that may result from student behaviors or other factors. This domain includes disciplinary incidents at the student, teacher, classroom, and school levels.

School Outcomes and Educational Opportunity (Pre-K through Postsecondary)

- Access to Educational Opportunity: Access to and/or participation in educational opportunities from pre-k to postsecondary that can influence whether a student remains on track for college readiness, including access to or enrollment in STEM courses, such as Algebra 1, advanced courses, pre-k, and gifted and talented programs; access to qualified, experienced, racially and ethnically representative or diverse, and/or effective teachers; and access to resources needed for learning, such as Wi-Fi.
- School Accountability Metrics: School outcomes reported and analyzed for entire schools, or for entire grades within schools, that include measures with an academic component, such as proficiency rates or school accountability ratings. Individual student scale scores (not proficiency rates) aggregated to the school level would fall under other student achievement domains.
- School Climate: Observations or assessments of the schoolwide or postsecondary institution environment or culture, as distinct from one's own behavior, such as the quality of social interactions, attendance, safety, engagement in school, sense of belonging, staff cohesion, teacher-student relationships, and parent-teacher communication, as well as the prevalence of bullying at the school. Measures may be based on extant data, self-reports, observations, or results from an assessment scale, and measures may be collected from students, staff, and parents.

School Leader Outcomes

• School Leader Practice: Includes outcomes that measure the quality of leadership ability demonstrated by the school leader, as measured by rubrics assessed by supervisors or from surveys of school staff, parents, or students.

- **School Leader Retention:** Includes outcomes that measure the percentage of school leaders who return to work as a school leader, either in general, in particular settings such as economically disadvantaged districts, or in the same school, district, or state, from year to year.
- **School Leader Well-Being:** Includes outcomes that measure school leader satisfaction, burnout, perceived ability to do one's job, intentions to continue leading, staff support, workload, and job-related stress and anxiety.

Teacher Outcomes

- **Teacher Attendance:** Includes outcomes that indicate the number or percentage of eligible workdays for which the teacher is present.
- **Teacher Practice:** Quality of instruction provided by teachers and their application of developmentally appropriate knowledge of content and/or pedagogy, as demonstrated by their actions in the classroom, including attempts to promote a positive and/or culturally responsive classroom environment and influence problematic student behavior by responding to students' actions with consequences or rewards. Outcomes can be based on classroom observation rubrics assessed by school principals, supervisors, or trained evaluators or student surveys. Teacher certification exam scores are reviewed under the <u>Technical Skills Proficiency</u> domain.
- **Teacher Retention:** Includes outcomes that measure the percentage of teachers who return to work as a teacher, either in general, in particular settings such as special education or economically disadvantaged districts, or in the same school, district, or state, from year to year.
- **Teacher Well-Being:** Includes outcomes that measure teacher satisfaction, burnout, perceived ability to do one's job, intentions to continue teaching, perceived leadership support, workload, and job-related stress and anxiety, including emotional exhaustion.

MAIN VERSUS SUPPLEMENTAL FINDINGS

As described in the *Handbook*, the WWC distinguishes *main* findings from *supplemental* findings (<u>pp. 128-129</u>). Main findings play a key role in determining a study's research rating and effectiveness rating for interventions. For example, effectiveness ratings and evidence tiers for interventions are designated based only on main findings (see *Handbook* <u>pp. 130-134</u>).

Outcome Measure Independence. For literacy- and mathematics-related domains and domains related to broad student achievement marked with an asterisk (*) on the list of outcome domains above, only findings from independent measures may be designated as main findings. Findings in these domains from nonindependent measures will be reviewed as supplemental. As stated in the *Handbook* (p. 28), a measure will be considered nonindependent if either it was developed by study authors and is not documented as in use by different study authors and apart from the intervention, or if it was developed by the intervention's developers. Measures created by intervention developers are considered to be independent when implemented with an intervention created by a different developer. A list of known independent measures in literacy and mathematics related domains follows in the appendix.

Outcome Measure Timing. Sometimes, studies present findings at different time periods. The WWC reviews outcomes for time periods for the full analytic sample, either as main or supplemental findings. For most outcome domains, the time period closest to the end of the intervention, and no more than 1 year after the conclusion of the intervention, is considered the main finding. All other follow-up time periods are considered to be supplemental. Exceptions to this rule are the <u>Earnings</u>, <u>Employment, College Degree Attainment</u>, and <u>Industry-Recognized Credential</u> domains. In these cases, main findings are those measured at least 1 year after the intervention or the expected graduation date, and findings near the end of the intervention and other follow-up findings are supplemental.

Composite versus Subscale Measures. Main findings include those measured using the composite–not subscale–scores, unless only a subscale was administered in the study. In all other instances, subscale measures in eligible domains will be reviewed as supplemental findings.

Dichotomous versus Continuous Measures. As indicated in the *Handbook* (p. 129), when both a continuous version and a dichotomized version of the same outcome are available, the WWC will treat the continuous version as a main finding and the dichotomized version as a supplemental finding. The *Handbook* (p. 27) also indicates that dichotomized measures must preserve the natural ordering of the latent variable to meet WWC standards.

Subgroup Findings. The WWC classifies the findings for the full analytic sample as the main findings. Generally, for studies where at least one main finding meets WWC standards, the WWC also reviews the following subgroup findings as supplemental if they are reported in a study: (1) students with disabilities or developmental delays; (2) students at risk of low performance in academics or behavior according to a standardized baseline measure; (3) dual language learners, English learners, or non-native English speakers; and (4) racial, ethnic, or socioeconomic categories of students.

Intent-to-Treat versus Treatment-on-the-Treated. The WWC generally reviews intent-to-treat findings as main findings and treatment-on-the-treated findings as supplemental findings.

Other. The WWC may review other supplemental findings that are relevant to the purposes of the WWC's review. The WWC generally does not review sensitivity analyses as described in the *Handbook* (<u>p. 130</u>).

APPENDIX

When making the independence determination, study review teams should refer to the definition of nonindependence articulated in the *Handbook* (<u>p. 29</u>) and consult the lists of measures included in this Appendix. The lists are not exhaustive.

- List A1 provides known independent measures required for findings to be designated as main in literacy and mathematics domains.
- List A2 provides developer measures that could be considered independent when used to estimate the impact of an intervention not created by the same developer.
- List A3 provides known state assessments by U.S. state or territory. The WWC will consider measures from these assessments independent.

A measure's independence designation may change as the measure is adopted more widely in the field. Changes in the independence designation will be reflected in the *Study Review Protocol*, which the WWC will update periodically.

If a review team encounters a measure that meets the definition of independence but is not included among independent measures in this *Study Review Protocol*, the team should submit a request to review the measure to the WWC Help Desk at <u>https://ies.ed.gov/ncee/wwc/help</u>.

List A1 includes known independent measures required for findings to be designated as main in literacy and mathematics domains.

9-10 English Assessment Success Papers 9-10 Mathematics Assessment Success Papers Abecedarian Reading Assessment Academic Achievement Battery (AAB) Academic Competency Evaluation Scale (ACES) Academic Rating Scale (ARS) ACCESS Test Accuplacer ACT **ACT Aspire ACT Explore** ACT Plan ACT WorkKeys Advanced Placement (AP) AimsWeb Analytical Reading Inventory (ARI) Bader Reading and Language Inventory (BRLI) Basic Achievement Skills Inventory (BASI) Bear Spelling Inventory (BSI) Bilingual English-Spanish Assessment (BESA) Bracken Basic Concept Scale (BBCS) Bracken School Readiness Assessment (BSRA) Brigance Diagnostic Inventory of Early Development (IED) California Achievement Test (CAT) Child Math Assessment (CMA) Clinical Evaluation of Language Fundamentals (CELF) Clinical Evaluation of Language Fundamentals (CELF) Preschool Cognitive Abilities Test (CogAT) Comprehensive Adult Student Assessment System (CASAS) Comprehensive Assessment of Outcomes in a First Statistics Course (CAOS) Comprehensive Mathematical Abilities Test (CMAT) Comprehensive Test of Basic Skills (CTBS) Comprehensive Test of Phonological Print Processing (CTOPPP) Comprehensive Test of Phonological Processing (CTOPP) Computerized Achievement Levels Test (CAT) Core Academic Language Skills (CALS)

CRESST Performance Assessment Models Degrees of Reading Power (DRP) Detroit Tests of Learning Abilities (DTLA) Developmental Indicators for the Assessment of Learning (DIAL) **Developmental Profile** Developmental Reading Assessment (DRA) Developmental Spelling Inventory (DSA) **Diagnostic Achievement Battery (DAB)** Diagnostic Assessments of Reading (DAR) Diagnostic Evaluation of Language Variation (DELV) Diagnostic Test of Word Reading Processes (DTWRP) Dialect Density Measure (DDM) **Dolch Word Recognition Durrell Analysis of Reading Difficulty** DRC Beacon Dynamic Indicators of Basic Early Literacy Skills (DIBELS) Dynamic Learning Maps (DLM) Early Childhood Longitudinal Study Measures (ECLS) Early Reading Assessment (ERA) Emerging Literacy & Language Assessment (ELLA) Expressive One Word Picture Vocabulary Test (EOWPVT) **Expressive Vocabulary Test (EVT)** FastBridge aMath FastBridge aReading FastBridge CBMmath FastBridge CBMreading FastBridge earlyMath FastBridge earlyReading Feifer Assessment of Mathematics (FAM) Feifer Assessment of Reading (FAR) Feifer Assessment of Writing (FAW) Fennema-Sherman Mathematics Attitude Scale Florida Center for Reading Research Reading Assessment (FRA) Gates MacGinitie Reading Test (GMRT) Get Ready to Read (GRTR) Global Integrated Scenario-Based Assessments (GISA) GOLD Graduate Management Admission Test (GMAT) Graduate Record Examination (GRE) Graduate Record Examination (GRE) Subject Tests

Gray Diagnostic Reading Tests Gray Oral Reading Test (GORT) Gray Silent Reading Test (GRST) Group Mathematics Assessment and Diagnostic Evaluation (GMADE) Group Reading Assessment and Diagnostic Evaluation (GRADE) Hamburger Schulleistungs Test (HST) IDEA Oral Language Proficiency Test (IPT) Illinois Test of Psycholinguistic Abilities (ITPA) Independent School Entrance Exam (ISEE) Iowa Algebra Aptitude Test (IAAT) Iowa Test of Basic Skills (ITBS) Kaufman Test of Educational Achievement (KTEA) **KeyMath** Law School Admissions Test (LSAT) Logramos Mathematics Diagnostic Testing Project (MDTP) Mathematics Fluency and Calculation Tests (MFaCTs) McCarthy Scales of Children's Abilities (MSCA) Measures of Academic Progress (MAP) Growth Measures of Academic Progress (MAP) Reading Fluency Medical College Admissions Test (MCAT) Metropolitan Achievement Test (MAT) Metropolitan Readiness Test (MRT) Monitoring Basic Skills Progress (MBSP) Morphological Relatedness Test (MRT) Morphological Structure Test (MST) Mullen Scales of Early Learning (MSEL) Multi-State Alternative Assessment (MSAA) Naglieri Nonverbal Ability Test (NNAT) National Assessment of Educational Progress (NAEP) Nelson-Denny Reading Test New England Common Assessment Program (NECAP) Northwest Achievement Levels Test (NALT) Number Sense Brief (NSB) Oral and Written Language Scales (OWLS) Oral Reading Assessment Level by Jimerson (ORAL-J) Orleans-Hanna Algebra Prognosis Test Parent Emergent Literacy Scale (PELS) Partnership For Assessment of Readiness for College and Careers (PARCC) Peabody Individual Achievement Test (PIAT)

Peabody Picture Vocabulary Test (PPVT) Phonological and Print Awareness Scale (PPA Scale) Phonological Awareness Literacy Screening (PALS) Phonological Awareness Test (PAT) Pictorial Test of Intelligence (PTI) Practice ACT (preACT) Preschool Comprehensive Test of Phonological Print Processing (Pre-CTOPPP) Preschool Early Literacy Indicators (PELI) Preschool Language Scale (PLS) Process Assessment of the Learner: Test Battery for Reading and Writing Progressive Achievement Test (PAT) **PSAT 8/9** PSAT 10 PSAT/NMSQT Qualitative Reading Inventory (QRI) Rapid Automatized Naming and Rapid Alternating Stimulus Tests (RAN/RAST) ReadBasix Reading Inventory and Scholastic Evaluation (RISE) Receptive One Word Picture Vocabulary Test (ROWPVT) SARA Reading Components Test SAT SAT Subject Tests Scholastic Reading Inventory (SRI) Screening Assessment for Gifted Elementary and Middle School Students (SAGES) Singapore Math Placement Test Slosson Oral Reading Test (SORT) Smarter Balanced Assessment Consortium (SBAC) Spache Diagnostic Reading Scale (DRS) Spot-the-Word Stanford Achievement Test (SAT) Stanford Achievement Test (SAT) Subject Test Stanford Binet Stanford Diagnostic Reading Test (SDRT) Stanford Early School Achievement Test (SESAT) Strong Narrative Assessment Procedure (SNAP) Symbol Digit Modalities Test (SDMT) Terranova Test of Adolescent and Adult Language (TOAL) Test of Auditory Analysis Skills (TAAS) Test of Auditory Comprehension of Language (TACL)

Test of Early Language Development (TELD) Test of Early Mathematics Ability (TEMA) Test of Early Reading Ability (TERA) Test of Early Written Language (TEWL) Test of Irregular Word Reading Efficiency (TIWRE) Test of Language Development (TOLD) Test of Mathematical Abilities (TOMA) Test of Narrative Language (TNL) Test of Oral Reading Fluency (TORF) Test of Orthographic Competence (TOC) Test of Phonological Awareness (TOPA) Test of Preschool Early Literacy (TOPEL) Test of Reading Comprehension (TORC) Test of Silent Contextual Reading Fluency (TOSCRF) Test of Silent Reading Efficiency and Comprehension (TOSREC) Test of Silent Word Reading Fluency (TOSWRF) Test of Word Reading Efficiency (TOWRE) Test of Written Language (TWL) Test of Written Spelling (TWS) Trends in International Mathematics and Science Study (TIMSS) Wechsler Individual Achievement Test (WIAT) Wechsler Intelligence Scale for Children (WISC) Wide Range Achievement Test (WRAT) Woodcock Johnson (WJ) Woodcock Munoz Language Survey (WMLS) Woodcock Reading Mastery Test (WRMT) Word Identification and Spelling Test (WIST) Word Recognition and Phonics Skills Test (WRaPS) WORD Test Yopp-Singer Test of Phoneme Segmentation Young Children's Achievement Test (WCAT)

List A2. Developer measures

Measures created by intervention developers are considered independent when implemented with an intervention created by a different developer. List A2 is provides examples of such measures. The WWC will also examine the study authorship to determine developer's involvement. Contact the Help Desk at https://ies.ed.gov/ncee/wwc/help to confirm if the measure is independent in a particular study.

Building Blocks Assessment (BBA) of Early Mathematics Exact Path FasTrack Learning Potential Assessment HMH Math Inventory HMH Growth HMH Reading Inventory Instrumento de observación i-Ready Indicators of Progress (ISIP) Observation Survey of Early Literacy Achievement Renaissance Star Success for All

List A3 includes known state assessments by U.S. state or territory. The WWC will consider measures from these assessments independent.

Alabama

Scantron Performance Test

Alaska

Alaska Science Assessment Alaska System of Academic Readiness (AK STAR) High School Graduation Qualifying Examination Performance Evaluation for Alaska's Schools (PEAKS)

American Samoa

American Samoa Standards Based Assessment (SBA)

Arizona

Arizona's Academic Standards Assessment (AASA) Arizona's English Language Learner Assessment (AZELLA) Arizona's Instrument to Measure Standards (AIMS) Arizona's Science Assessment (AzSCI) AZMerit

Arkansas

Augmented Benchmark Examinations

California

California Assessment of Student Performance and Progress (CAASPP) California High School Exit Exam (CAHSEE) California Science Test California STAR California Standards Tests (CSTs) California State University English Placement Test (CSU-EPT) English Language Proficiency Assessments for California (ELPAC)

Colorado

Colorado Measures of Academic Success (CMAS) Colorado Student Assessment Program (CSAP) Connecticut Academic Performance Test (CAPT)

Connecticut

Connecticut Mastery Test (CMT)

Delaware

Delaware Comprehensive Assessment System (DCAS) Delaware Student Testing Program (DSTP) Delaware System of Student Assessment (DeSSA)

District of Columbia

DC Science Assessments District of Columbia Comprehensive Assessment System (DC CAS)

Florida

Florida Comprehensive Assessment Test (FCAT) Florida End of Course Assessments Florida Standards Alternate Assessment (FSAA) Florida Standards Assessments (FSA)

Georgia

Criterion Referenced Competency Tests (CRCT) DRC BEACON Georgia Alternate Assessment 2.0 (GAA 2 .0) Georgia High School Graduation Test (GHSGT) Georgia Milestones Georgia Writing Assessment

Guam

Guam Standards Based Assessments

Hawaii

Hawaii Content and Performance Standards Hawaii State Alternative Assessment (HSAA) Hawaii State Assessment (HSA)

Idaho

Idaho Standards Achievement Test (ISAT)

Illinois

Illinois Assessment of Readiness (IAR) Illinois Science Assessment (ISA) Illinois Standards Achievement Test (ISAT) Prairie State Achievement Examination (PSAE)

Indiana

ILEARN

Indiana Reading Evaluation and Determination (IREAD-3) Indiana Statewide Testing for Educational Progress-Plus (I-STEP+)

Iowa

Iowa Assessments Iowa Statewide Assessment of Student Progress (ISASP) Iowa Test of Basic Skills (ITBS) Iowa Tests of Educational Development (ITED)

Kansas

Kansas Assessment Program (KAP) Kansas Summative Assessment (KSA)

Kentucky

Commonwealth Accountability Testing System (CATS) Kentucky Performance Rating for Educational Progress (K-PREP)

Louisiana

Graduate Exit Examination (GEE) Integrated Louisiana Educational Assessment Program (ILEAP) Louisiana Educational Assessment Program (LEAP)

Maine

Maine Comprehensive Assessment System (MECAS) Maine Educational Assessment (MEA) Maine High School Assessment (MHSA)

Maryland

Maryland Comprehensive Assessment Program (MCAP) Maryland High School Assessment (HSA) Maryland School Assessment (MSA)

Massachusetts

Massachusetts Comprehensive Assessment System (MCAS)

Michigan

Michigan Educational Assessment Program (MEAP) Michigan Merit Exam (MME) Michigan Student Test of Educational Progress (M-STEP)

Minnesota

Minnesota Comprehensive Assessments (MCA) Minnesota Comprehensive Assessments- Series II (MCA-II) Minnesota Test of Academic Skills (MTAS)

Mississippi

Mississippi Academic Assessment Program (MAAP)

Mississippi Curriculum Test (MCT) Mississippi Functional Literacy Exam (MFLE)

Missouri

Missouri Assessment Program (MAP)

Montana

Montana Comprehensive Assessment System (MontCAS)

Montana Science Assessment

Nebraska

Nebraska Student-Centered Assessment System (NSCAS)

Nevada

Nevada Proficiency Examination Program (NPEP)

New Hampshire

New Hampshire Statewide Assessment System (NHSAS) Performance Assessment of Competency Education (PACE)

New Jersey

New Jersey Assessment of Skills and Knowledge (NJASK) New Jersey Grade Eight Proficiency Assessment (GEPA) New Jersey Graduation Proficiency Assessment (NJGPA) New Jersey High School Proficiency Assessment (HSPA) New Jersey Student Learning Assessments (NJSLA) Start Strong Assessments

New Mexico

Avant STAMP Interim New Mexico Measures of Student Success and Achievement (I-MSSA) New Mexico Alternate Performance Assessment (NMAPA) New Mexico Assessment of Science Readiness (NM-ASR) New Mexico Measures of Student Success and Achievement (NM-MSSA) New Mexico Standards-based assessment (NMSBA)

New York

New York State Assessments (NYSA) New York State Testing Program (NYSTP) Regents Examinations

North Carolina

Beginning-of-Grade 3 Reading Test (BOG3) North Carolina End-of-Course Tests (EOC) North Carolina End-of-Grade Tests (EOG)

North Dakota

North Dakota State Assessment (NDSA)

Ohio

Ohio Achievement Assessment (OAA) Ohio Graduation Test (OGT) Ohio State Tests

Oklahoma

Oklahoma Core Curriculum Tests (OCCT) Oklahoma School Testing Program (OSTP)

Oregon

Oregon Assessment of Knowledge and Skills (OAKS) Oregon Statewide Assessment System (OSAS)

Pennsylvania

Keystone Exam Pennsylvania Alternate School Assessment (PASA) Pennsylvania System of School Assessment (PSSA)

Puerto Rico

META-PR

Rhode Island

Rhode Island Comprehensive Assessment System (RICAS) Rhode Island Next Generation Science Assessment (RI NGSA)

South Carolina

End-of-Course Examination Program (EOCEP) High School Assessment Program (HSAP) Ready to Work test SC READY South Carolina Palmetto Achievement Challenge Test (PACT) South Carolina Palmetto Assessment of State Standards (SCPASS)

South Dakota

South Dakota Science Assessment (SD-SCI) South Dakota State Test of Educational Progress (DSTEP)

Tennessee

Tennessee Comprehensive Assessment Program (TCAP) TNReady

Texas

State of Texas Assessments of Academic Readiness (STAAR) Texas Assessment of Academic Skills (TAAS) Texas Assessment of Knowledge and Skills (TAKS) Texas Early Mathematics Inventories (TEMI) Texas English Language Proficiency Assessment System (TELPAS) Texas Primary Reading Inventory (TPRI) Texas Success Initiative Assessment (TISA)

Utah

Kindergarten Entry and Exit Profile (KEEP) Pre-Kindergarten Entry and Exit Profile (PEEP) Readiness Improvement Success Empowerment (RISE) Student Assessment of Growth and Excellence (SAGE) Utah Aspire Plus

Vermont

Vermont Science Assessment (VTSA)

Virginia

Standards of Learning (SOL)

Washington

Washington–Access to Instruction and Measurement (WA-AIM) Washington Assessment of Student Learning (WASL) Washington Comprehensive Assessment of Science (WCAS) Washington Kindergarten Inventory of Skills (WaKIDS) Washington Measurements of Student Progress (MSP) WIDA ACCESS Assessments

West Virginia

West Virginia Alternate Summative Assessment West Virginia General Summative Assessment (WVGSA) WESTEST

Wisconsin

Wisconsin Forward Wisconsin Knowledge and Concepts Examination (WKCE)

Wyoming

Proficiency Assessments for Wyoming Students (PAWS) Wyoming Test of Proficiency and Progress (WY-TOPP)