Table S1

Summary of Participant and Study Characteristics

Study	Number, gender, grade	Design	Dependent variable
1. Alghamdi et al. (2020)	*n* = 3; 3 M; 5th (3); 2 Black, 1 Asian	MP	Percentage accuracy on the word problem solving test (multiplication and division of whole numbers)
2. Bundock et al. (2021)	*n* = 2; 1 M, 1 F; 9th (2); NR	MP	Mathematics scores on a ROC problem solving assessment; each ROC assessment was scored for both mathematics and writing
3. Edwards et al. (2020)	*n* = 5; 2 M, 3 F; 11th (5); NR	MP	Percentage of steps completed correctly on math word problems (percent-cost)
4. Freeman-Green et al. (2015)	*n* = 6; 6 M; 8th (6); 5 White, 1 Black/Asian	MP	Number correct on the use of the SOLVE Strategy; number correct on word problems probes (whole numbers, decimals)
5. Jitendra et al. (1999)	*n* = 4; 2 M, 2 F; 6th (1), 7th (3); 1 Black/White, 3 White	MB	Percentage correct operations and computations for one-step and two-step word problems (addition and subtraction of whole numbers)
6. Jitendra et al. (2002)	*n* = 4; 2 M, 2 F; 8th (4); 1 Black/White, 3 White	MP	Number correct of word problems (one-step multiplication and division of whole numbers and fractions)
7. Jitendra & Hoff (1996)	*n* = 3; 1 M, 2 F; 3rd (2), 4th (1); 3 White	MP	Percentage of math word problems completed correctly (addition and subtraction of whole numbers)
8. Liu & Xin (2017)	*n* = 3; 2 M, 1 F; 4th (3); 1 Black/White, 2 White	MB	Correct number of points for correctly solving problems on the criterion test and its alternate forms; correct number of points for quality self-explanation on the criterion test and its alternative forms (multiplication and division of whole numbers)
9. Maccini & Hughes (2000)	*n* = 6; 2 M, 4 F; 9th (3), 10th (2), 12th (1); 1 Black/White, 5 White	MP	Percentage correct on problem solution; percentage correct on problem representation (addition, subtraction, multiplication, and division of integers)
10. Maccini & Ruhl (2000)	*n* = 3; 3 M; 8th (3); 1 Black, 2 White	MP	Percent correct on problem solution; percent correct on problem representation (subtraction of integers)
11. Marsh & Cooke (1996)	*n* = 3; 3 M; 3rd (3); NR	MB	Number of correct student responses on 10-item word problem probes (addition, subtraction, multiplication, and division of whole numbers)
12. Montague (1992)	*n* = 3; 1 M, 2 F; 6th (1), 7th (1), 8th	MB	Number of correct responses on mathematical problem solving tests

Study	Number, gender, grade	Design	Dependent variable
	(1); 1 Black, 1 Hispanic, 1 White		(addition, subtraction, multiplication, and division of whole numbers or decimals)
13. Montague & Bos (1986)	*n* = 6; 5 M, 1 F; 10th (2), 11th (3), 12th (1); NR	MB	Number of correct responses on verbal math problem solving tests (addition, subtraction, multiplication, division of whole numbers)
14. Peltier et al. (2020)	*n* = 3; 2 M, 1 F; 4th (2), 5th (1); 1 Black, 2 Black/Asian/White	MP	Correct percentage on mathematical problem solving (addition and subtraction of whole numbers and fractions with the same denominator)
15. Peltier et al. (2021)	*n* = 5; 4 M, 1 F; 5th (5); 2 White, 1 Hispanic, 1 Black/Asian/White, 1 Hispanic/Asian	MP	Correct percentage on mathematical problem solving (addition and subtraction of whole numbers and fractions with the same denominator)
16. Satsangi et al. (2020)	*n* = 3; 3 M; 9th (1), 10th (2); 2 Black/White, 1 Hispanic	MP	Percentage of correctly solved geometry word problems accessed via a tablet
17. Scheuermann et al. (2009)	*n* = 14; 10 M, 4 F; 6th (4), 7th (4), 8th (6); 2 Black, 12 White	MP	Percentage of points on the word problem test (one-variable equation)
18. Sharp & Dennis (2017)	*n* = 3; 1 M, 2 F; 4th (3); 3 Hispanic	MP	Percentage correct scores on curriculum-based assessment probes of fraction word problems
19. Shin & Bryant (2017)	*n* = 3; 2 M, 1 F; 6th (1), 7th (1), 8th (1); 1 Black, 1 Black/White, 1 Hispanic/White	MP	Percentage of correct word problem solving problems with fractions and multiplication
20. van Garderen (2007)	*n* = 3; 2 M, 1 F; 8th (3); 1 Hispanic, 1 Black/White, 1 White	MP	Percentage of word problems solved correctly
21. Yang & Xin (2022)	*n* = 3; 1 M, 2 F; 7th (3); 1 White, 2 Black/White	MP	Percent correct for multiplicative compare word problem solving and problem posing

Table S2
Summary of Word Problem Measures

Study	Maintenance	Complexity		
		Single Type	Combined Type	Generalization
1. Alghamdi et al. (2020)	Yes	NR	A total of 18 points were possible in each testing session across nine word problems	NR
2. Bundock et al. (2021)	Yes	Two questions on finding slope of graphed lines, 2 constant ROC word problems, and one variable ROC word problem	NR	NR
3. Edwards et al. (2020)	Not included (one-time)	30 percent-cost word problems (included items on sale, the sale price, and the percent the item was on sale for)	NR	NR
4. Freeman-Green et al. (2015)	Yes	NR	Varying problem types (e.g., joining, separating, multiplying, comparing); 10 points per probe	Another math topics from math class (i.e., inequalities)
5. Jitendra et al. (1999)	Yes	Addition and subtraction word problems presented in commercial basal mathematics programs (change, group, or compare)	Addition and subtraction word problems presented in commercial basal mathematics programs (change, group, and compare)	More complex word problems (two-step)
6. Jitendra et al. (2002)	Yes	Six one-step multiplication and division word problems involving two different problem types (i.e., vary or multiplicative comparison)	Six one-step multiplication and division word problems involving two different problem types (i.e., vary and multiplicative comparison)	Not included (no raw data)
7. Jitendra	Yes	Addition and subtraction word problems	Addition and subtraction word problems presented in	NR

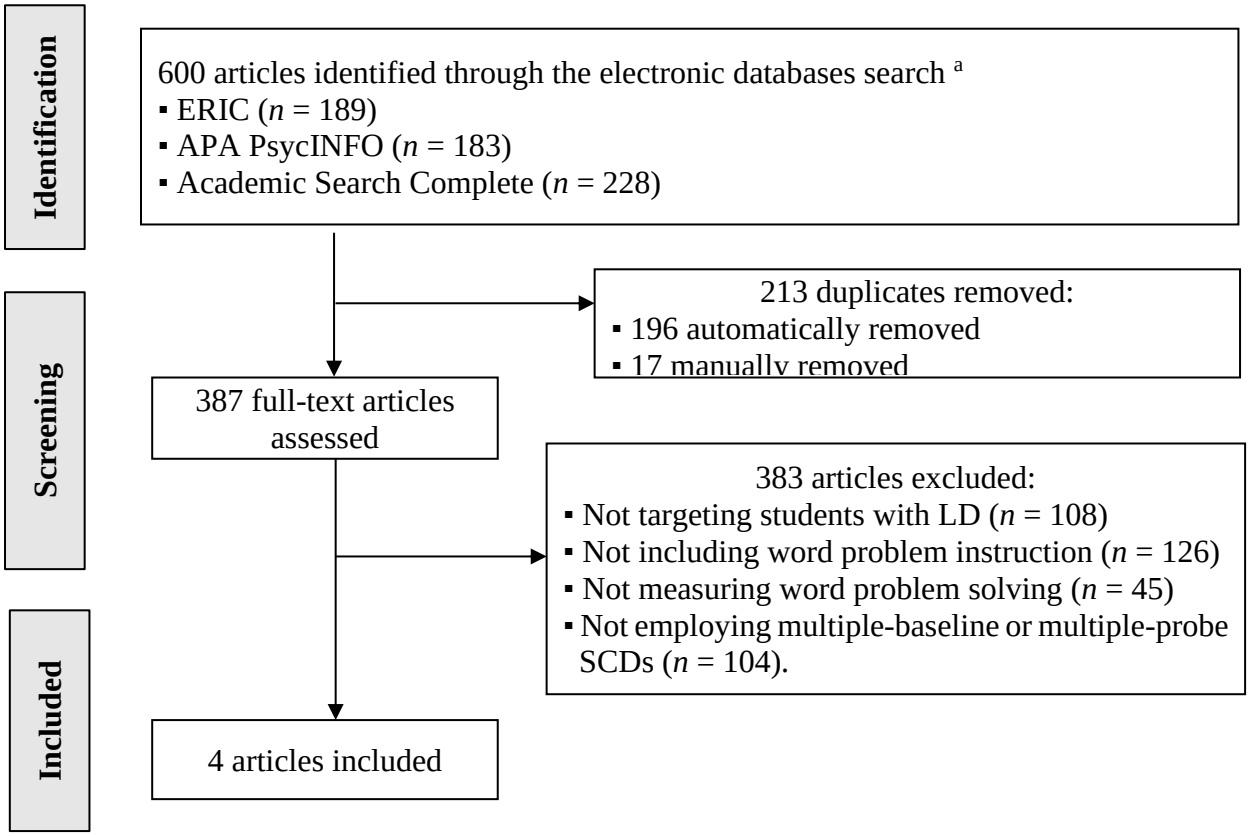
Study	Maintenance	Complexity		
		Single Type	Combined Type	Generalization
& Hoff (1996)		presented in commercial basal mathematics programs (change, group, or compare)	commercial basal mathematics programs (change, group, and compare)	
8. Liu & Xin (2017)	Yes	NR	Researcher-developed criterion; six one-step equal group problems, two for each of three variations	More complicated two-step word problems
9. Maccini & Hughes (2000)	Not included (one-time)	Addition, subtraction, multiplication, or division of integers	NR	One near- and one far-transfer measure.
10. Maccini & Ruhl (2000)	Not included (one-time)	Subtraction of integers	NR	One near transfer and one far transfer measure of five problems
11. Marsh & Cooke (1996)	NR	10 items, including whole number addition, subtraction, multiplication, and division	NR	NR
12. Montague (1992)	Yes (included Subject 1 to 3; called temporal generation)	NR	Each test contained 3 one-step, 4 two-step, and 3 three-step problems requiring the four basic operations and whole numbers or decimals.	NR
13. Montague & Bos (1986)	Yes (S2, S4, and S5)	NR	Ten two-step problems (any combination of the four basic mathematical operations, that is, addition, subtraction, multiplication, and division of whole numbers)	Not included (one-time)
14. Peltier et al. (2020)	Yes	Each probe contained three-word problems fitting the target schema (e.g., part-part-whole, compare, change)	Combined schema probes included three-word problems; each word problem required multiple steps with two schema types embedded; mixed	Part-part-whole with three parts, change with two change amounts, and compare with three quantities

Study	Maintenance	Complexity		
		Single Type	Combined Type	Generalization
			schemas contained one problem per schema structure (i.e., part-part-whole, change, compare).	
15. Peltier et al. (2021)	Not included (one-time)	Each probe contained three word problems with the unknown quantity randomly assigned (e.g., part-part-whole, compare, change)	Contained three word problems; each word problem contained two schema types and required multiple steps to solve	Part-part-whole with three parts, change with two change amounts, and compare with three quantities
16. Satsangi et al. (2020)	Yes	NR	Area of a square solve for perimeter, the perimeter of a square solve for area, the width and area of a rectangle solve for the length of a side, and the length and area of a rectangle solve for the perimeter	NR
17. Scheuer mann et al. (2009)	Yes	Each containing 10 one-variable word problems; randomly allocating the critical elements (i.e., names, units, values) within a set of structured word problems; the problems were written in a familiar format	NR	Problems that students had not been taught to solve (the uninstructed problems), written in a familiar format
18. Sharp & Dennis (2017)	Yes	NR	Each probe involving five word problems: (a) compare two fractions with common numerators, (b) compare three fractions with common numerators, (c) compare three fractions using the benchmark-of-one, (d) order three fractions	The tests contained two items of each type: compare fractions with common numerators, compare fractions with benchmark-of-one, order fractions with common numerators, and

Study	Maintenance	Complexity		
		Single Type	Combined Type	Generalization
			with common numerators, and (e) order three fractions using a benchmark-of-one.	order fractions with benchmark-of-one.
19. Shin & Bryant (2017)	NR	NR	Five questions, involving combination, partition, and multiplicative comparison types	NR
20. van Garderen (2007)	Yes	Eight one-step word problems (for Phase 2); eight two-step word problems (for Phase 3)	A mixture of eight one- and two-step word problems (for baseline, probe, and maintenance conditions)	Eight "nonroutine" or complex, authentic real-world word problems randomly selected from 13 Word problems used in a study by van Garderen and Montague (2003)
21. Yang & Xin (2022)	NR	NR	Researcher-developed criterion word problem solving test; Six one-step multiplicative compare word problems	Six two-step word problems taken from STAAR database, involving the operation of multiplication division, multiplication multiplication, division division, and division multiplication.

Note. CAI = computer-assisted instruction; CMSI = cognitive and metacognitive strategy instruction; CRA-I = integrated sequence of concrete-representational-abstract; CSA = concrete-semiconcrete-abstract teaching sequence; CSI = cognitive strategy instruction; EI = explicit instruction; F = female; M = male; MB = multiple baseline; MP = multiple probe; MSI = metacognitive strategy instruction; NR = not reported; POD✓ = Propose, Outline, Defend, Check.; ROC = rate of change; SBI = schema-based instruction; SBSI = schema-based strategy instruction; SE = special education teacher; STAAR = State of Texas Assessments of Academic Readiness; STAR = search the problem, translate the problem into a schematic diagram, answer the problem, and review the solution.

Figure S1
Literature Search Procedures



Note. SCD = single-case design.

We conducted the same electronic database search through Education Resources Information Center (ERIC; *n* = 189), PsycINFO (*n* = 183), and Academic Search Complete (*n* = 228) with wildcard search terms of "(learning disab* OR dyslexi* OR dyscal* OR math* disab*) AND (word problem* OR problem solving*)." This search resulted in 600 articles initially. Excluding 213 duplicates (196 removed automatically and 17 removed manually), we evaluated 387 full-text articles for eligibility based on the above inclusion criteria. Four articles were included in the current study, and 383 articles were removed due to not targeting students with learning disabilities (*n* = 108), not including word problem instruction as the independent variable (*n* = 126), not measuring word problem solving as the dependent variable (*n* = 45), and not employing multiple-baseline or multiple-probe single-case designs (*n* = 104).

Appendix A

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