

# Teaching Students to Write Sentences

## A Review of the Literature

***Kristen D. Ritchey, David L. Coker Jr, Matthew C. Myers, and Fan Zhang***

Being able to write a sentence is an essential part of overall writing proficiency, but this can be a challenge for many students. This article provides a systematic review of the extant literature on sentence-writing instruction. Sixteen studies designed to improve sentence writing for students who are typically achieving or have disabilities or other writing needs were reviewed. Across studies, explicit instruction, self-regulation strategies, and sentence-writing practice were associated with improvements in writing. Directions for future research and limitations in the existing knowledge base about sentence-writing instruction and interventions are described. **Key words:** *instruction, review, sentence writing*

**P**ROFICIENT writing requires skill across levels of language at the letter, word, sentence, and discourse levels (Whitaker et al., 1994). Each level of language presents unique challenges for writers. For example, at the word level, writers must draw on both phonological knowledge to represent the sounds in language and orthographic knowledge to represent patterns, such as consonant and vowel digraphs (Ehri, 1989). At the sentence level, writers must leverage multiple knowledge sources, including vocabulary to represent ideas, syntax to combine words in meaningful ways, morphology to inflect words, change word meaning, and to derive new parts of speech (e.g., *run-runner*), and conventions for capitalization and punctuation (Dockrell et al., 2019; Tolchinsky, 2006). At the discourse level, writers must con-

sider macroelements such as paragraph and larger text structures and how they interact with rhetorical goals (McCutchen, 2006). In addition, intersentential features such as cohesive devices contribute to overall text quality across grade levels (Cameron et al., 1995; Cox et al., 1990; MacArthur et al., 2019). Similarly, complex texts are composed of sentences with varied structures (i.e., simple, compound, and complex sentences) that serve different rhetorical purposes (e.g., describe, inform, and argue). Students with weak sentence skills are likely to struggle with longer texts because sentence-level skill predicts writing productivity, accuracy, and quality (Arfé et al., 2016; Arfé & Pizzocaro, 2016; Berninger et al., 2011).

Despite the importance of sentence writing, there is not a clear developmental progression of how students learn to write different kinds of sentences. Teachers' expectations for what typically achieving students should write are often guided by the Common Core State Standards (CCSS; National Governors Association Center for Best Practices, Council of Chief State School Officers, 2010). For example, the first-grade standard for sentence writing requires that students write and expand simple and compound declarative, interrogative, imperative,

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**Author Affiliation:** School of Education, University of Delaware, Newark.

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**Corresponding Author:** Kristen D. Ritchey, PhD, School of Education, University of Delaware, 015C Willard Hall, Newark, DE 19716 ([kritchey@udel.edu](mailto:kritchey@udel.edu)).

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and exclamatory sentences and use correct capitalization and ending punctuation. However, as many as 30% of students in first grade cannot write a complete sentence (Berninger et al., 2011). For fourth grade, students are expected to produce complete sentences and identify and correct sentence fragments and run-on sentences. Beyond fourth grade, the expectations in the standards shift to longer texts, which require students to generate sentences with varied structures.

Sentence writing is challenging for all students, and students with a range of disabilities are reported to struggle on sentence-related tasks in comparison with typically achieving students. In a meta-analysis on writing outcomes associated with sentence writing, students diagnosed with specific learning disabilities (SLD) were found to score lower than their unaffected peers. The effect size difference in their performance across sentence-level measures ranged from  $-0.81$  to  $-1.14$  (Graham et al., 2017). Similarly, Italian students identified as having written expression difficulties were found to score lower on written sentence generation and reformulation tasks than typically achieving students (Arfé & Pizzocaro, 2016). Students with specific language impairments (SLI) wrote texts containing sentences with shorter clauses, fewer main clauses, and a lower percentage of coordinating clauses than age-matched typically achieving students (Mackie et al., 2013). Furthermore, students with moderate to severe disabilities, such as autism spectrum disorder (ASD), may demonstrate difficulties with writing across levels of language, including at the sentence level (Dockrell et al., 2014; Kushki et al., 2011). These results signal that students with disabilities may need instruction on the specific components of sentence writing. The purpose of this article is to synthesize research on instruction that addresses sentence writing, which is an area of need for both developing writers and students with writing difficulties.

### **Sentence-Writing Instruction**

To help all students master the challenges of writing across levels of language,

instruction for each level is needed. However, relatively little attention has focused on sentence writing despite the relationship between sentence-level skills and overall writing productivity, accuracy, and quality (Arfé et al., 2016; Arfé & Pizzocaro, 2016; Berninger et al., 2011). Furthermore, current writing recommendations simply call for teaching students how to write sentences (Graham et al., 2012; Graham et al., 2016).

In previous reviews, a variety of sentence instruction approaches have been found to be effective in strengthening various writing outcomes with undifferentiated samples of students (Andrews et al., 2006; Graham & Perin, 2007) as well as students with disabilities (Datchuk & Kubina, 2013; Mason & Graham, 2008; Rogers & Graham, 2008). Approaches that have improved student writing include instruction in creating simple sentences; elaborating sentences by adding descriptors, phrases, and clauses; strategy instruction for composing and editing sentences; and sentence combining. Results from these earlier reviews revealed that there is a small body of evidence on the benefits of various approaches to sentence instruction. A common theme across studies was the relative lack of research in this area despite its importance. For example, the most recent review of interventions addressing writing for students with disabilities included studies that addressed handwriting, grammar/usage instruction, and sentence construction (sentence writing and sentence combining; Datchuk & Kubina, 2013). Of the nine studies related to sentence writing, five studies focused on sentence writing, and four studies focused on sentence combining. In the decade since that review, a number of new empirical studies focused on sentence-writing instruction have been published.

### **The Current Review**

Our work extends prior reviews of writing that included sentence-writing instruction and interventions (Andrews et al., 2006; Datchuk & Kubina, 2013; Graham & Perin,

2007; Mason & Graham, 2008; Rogers & Graham, 2008). We expand earlier work in this area by updating the literature review with more recently published studies and including typically achieving students and students with disabilities or writing risk that may affect writing achievement. We focused solely on sentence instruction because sentence combining requires students to write sentences using elements from simple kernel sentences (Saddler & Graham, 2005). As a result, sentence combining may not be productive for students who are unable to construct simple sentences independently.

## RESEARCH QUESTIONS

The purpose of this review is to synthesize and evaluate sentence-writing instruction and interventions for students with and without disabilities or academic difficulties in writing across grades. We address the following research questions: (1) What instructional approaches are used to teach sentence writing to students with and without disabilities? (2) Do these instructional approaches result in improved sentence writing?

## METHOD

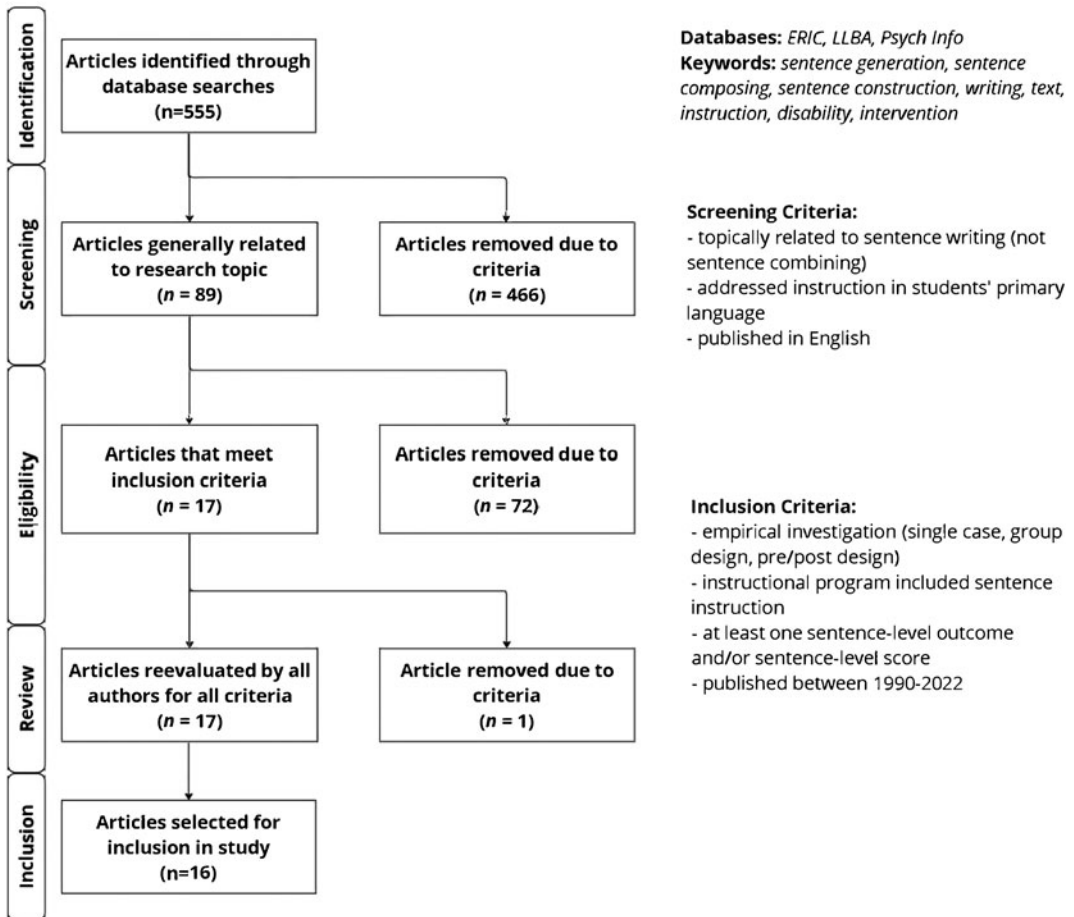
We were interested in identifying the studies of sentence-writing instruction for students in kindergarten to 12th grades. We were specifically looking for empirical studies that taught students to write at the sentence level of language. Studies could also address other aspects of writing (e.g., spelling). However, studies of sentence combining were excluded. The study also needed to include at least one sentence-level outcome measure. Studies were excluded if the outcome measures were broad writing measures, such as the Test of Written Language, and did not include a sentence-level score. Group design, single case or single subject designs, and pre-/posttest only studies were included; qualitative studies were excluded. Studies were included if the mode of implementation

was in the students' primary language and the study was published in English, and we set a date range of 1990–2022. Our search process is detailed in Figure 1.

The initial effort to locate studies involved a search of the Education Resources Information Center (ERIC), Linguistics and Language Behavior Abstracts (LLBA), and PsycINFO databases using the following search terms: *sentence generation*, *sentence composing*, *sentence construction*, *writing*, *text*, *instruction*, *disability*, and *intervention*. This search yielded 555 articles. Of this set, 466 did not meet the inclusion criteria based on a review of abstracts.

The remaining articles ( $n = 89$ ) were reviewed by at least two authors to determine that they met the inclusion criteria. Seventeen articles were identified that met all inclusion criteria. To check for relevant articles that were not identified in the databases, a hand search of six journals (*Journal of Learning Disabilities*, *The Journal of Special Education*, *Journal of Writing Research*, *Learning Disabilities Research & Practice*, *Reading and Writing*, and *Reading & Writing Quarterly*) and the reference lists of recent review articles (Andrews et al., 2006; Datchuk & Kubina, 2013; Graham & Perin, 2007; Mason & Graham, 2008; Rogers & Graham, 2008) was also conducted. Articles that contained the term *writing* or *sentence* in the title were reviewed; no additional articles were identified that met the inclusion criteria. The 17 remaining articles were reevaluated by all authors to verify that they warranted inclusion. There was 94% agreement that the final set of articles should be included (as rated by pairs of authors). The one discrepancy was for an article that did not have an independent sentence-level outcome (the sentence score was one element of a paragraph rubric and was not reported separately). This article was excluded, yielding a final set of 16 articles.

Each article was read and reviewed by each author to identify key features of each study and to summarize the instructional



**Figure 1.** Selection process.

approaches used to teach sentence writing. We coded articles for age and/or grade, sample size, characteristics of the sample, a description of how sentence writing was taught, the number of sessions, length of each session, outcome measures, and results. We relied on the authors' description of study participants to identify whether the participants were either students who were typically achieving or students who were identified as having a disability (or individual education program), difficulty with writing, or at risk for writing disability (as operationalized by the researchers). Participants were described as typically achieving in one study, and participants were described as having a disability, difficulty, or risk in 15 studies.

## RESULTS

The 16 studies identified by our search process that focused on sentence-writing instruction are described later. The predominant instructional approach across studies was associated with instructional principles of explicit instruction, which includes teacher modeling and opportunities for student practice with feedback. The studies varied in specific features, such as dosage, types of feedback, outcomes measures, and student population. The results from this body of research suggest that sentence-writing instruction improves sentence-writing outcomes with variability within and across studies. Table 1 describes the key features of each study.

Table 1. Summary of studies

Study	Design	N	Participant Characteristics	Intervention	Dosage	Outcomes and Results
<i>Students who are typically achieving</i> Hamzadayi (2015)	Quasi-experimental	58	Typically achieving students	Progressive oral and written sentence development activities	Not reported	Picture prompt: significant differences on measures of sentence writing focused on descriptions (concretization, clauses, reduplication, metaphor, and adjective outcomes)
<i>Students with high-incidence disabilities or writing risk</i> Anderson and Keel (2002)	Pretest–posttest design	11	Specific learning disability ( $n = 6$ ); behavior disorders ( $n = 4$ ); and comorbid LD/BD ( $n = 1$ )	Direct instruction using <i>Reasoning and Writing</i> curriculum	25 sessions (five per week); 35–50 min each	TOWL-2 Spontaneous Writing Quotient = seven students showed gains; three students showed losses Effect size <sup>a</sup> = 0.47 Syntactic Maturity effect size = 0.48 Contextual Style effect size = 0.44 WIAT Sentence Combining: significant improvement (effect size = 0.17) <sup>b</sup>
Berninger et al. (2015)	Pretest–posttest design	35	SLD	Multicomponent computer-based intervention including subword, word, and sentence-level activities	18 sessions; 120 min each	
Datchuk (2016)	Single case design (multiple probe across participants)	4	Writing difficulties	Explicit instruction of sentence writing plus fluency-building practice plus paragraph instruction	13 sessions (1 per day); 15–30 min each	Sentence prompt (1 min): improvement in CWS, IWS, percentage of complete sentences; percentage of incomplete sentences; variability across students in rate of improvement and number of sessions to meet criterion ( <i>continues</i> )

**Table 1.** Summary of studies (*Continued*)

<b>Study</b>	<b>Design</b>	<b>N</b>	<b>Participant Characteristics</b>	<b>Intervention</b>	<b>Dosage</b>	<b>Outcomes and Results</b>
Datchuk (2017)	Single case design (multiple baseline across small groups)	15	SLD ( $n = 3$ ), EBD ( $n = 1$ ), ASD ( $n = 1$ ), and writing difficulties ( $n = 10$ )	Explicit instruction of sentence writing plus fluency-building practice	15 sessions (two to three per week); 15–30 min each	Sentence prompt (1 min); improvements on group mean C-IWS
Datchuk and Dembek (2018)	Single case design (multiple baseline across small groups)	5	SLD ( $n = 2$ ); at risk for writing difficulties ( $n = 5$ )	Explicit instruction of sentence writing plus fluency building and spelling practice	15 sessions (two to three per week); 15–30 min each	Sentence-writing prompts (1–2 min); improvements in trend for number of C-IWS and percentage accuracy (CWS/CWS + IWS) for both groups; there was variability in performance across students
Datchuk and Kubina (2017)	Single case design (multiple baseline across participants)	4	SLD ( $n = 3$ ), intellectual disability ( $n = 1$ )	Explicit instruction of sentence writing plus fluency-building practice, followed by paragraph instruction	Up to 18 sessions; 6–25 min each	Sentence-writing prompt (1 min); improvement in CWS, IWS, percentage of complete sentences; percentage of incomplete sentences; variability across students in rate of improvement (celeration) and maintenance
Datchuk et al. (2015)	Single case design (multiple baseline across participants)	4	EBD ( $n = 1$ ); SLD and EBD ( $n = 2$ ); ASD and SLI ( $n = 1$ )	Explicit instruction of sentence writing plus fluency-building practice	18 sessions; 10–25 min each	Sentence construction assessment (1 min); improvement (based on celeration) in CWS (PND = 87%), IWS (PND = 85%), and percentage of complete sentences (PND = 80%) and percentage of incomplete sentences (PND = 60%)
Datchuk et al. (2020)	Single case design (single baseline)	1	SLI and ADHD	Explicit instruction of sentence writing plus fluency-building practice with reinforcement	12 sessions; 10–35 min each	Sentence prompts (1 min); improvement on CWS

(*continues*)

**Table 1.** Summary of studies (*Continued*)

Study	Design	Participant Characteristics		Intervention	Dosage	Outcomes and Results
		N	Characteristics			
Datchuk and Rodgers (2019)	Single case design (multiple baseline across small groups)	8	High-incidence disabilities	Explicit instruction of sentence writing plus fluency-building practice	18 sessions; 10–25 min each	Sentence-writing prompt (1 min): improvements in CWS ( $Tau-U^c = 0.60$ ) and IWS ( $Tau-U = 0.70$ ); students in three of four groups showed consistent improvement; others showed variable improvement
Datchuk et al. (2019)	Single case design (multiple baseline across participants)	3	SLD in reading and written language	Explicit instruction of sentence writing plus fluency-building practice plus typing	21 sessions; 10–25 min each	Sentence-writing prompts (3 min): variable improvement across students in accuracy in CWS and IWS with maintained gains
Furey et al. (2017)	Regression discontinuity design	107	Students with writing needs ( $n = 19$ ); three with IEP goals in writing	Explicit instruction of sentence writing with self-regulatory supports (SRSD)	Two sessions per week; 35 min each	Statistically significant difference between intervention and nonintervention groups on TOWL
McCurdy et al. (2008)	Single case design (multiple baseline across tasks)	17	SLD ( $n = 15$ ); intellectual disability ( $n = 2$ )	Comprehensive Writing Program (instruction in targeted writing skill, choice of story starter, practice, group contingencies, feedback)	Four to five sessions per week	Contextual Conventions (effect size <sup>d</sup> = 2.36) but no significant difference on TOWL Story Composition Story starter (1-min planning, 3-min writing) scored for percentage of complete sentences, percentage of sentences with an adjective, and percentage of compound sentences: increases in class mean performance for percentage of complete sentences, increases in percentage of adjectives and compound sentences with more class mean variability and less evidence of maintenance ( <i>continues</i> )

**Table 1.** Summary of studies (*Continued*)

Study	Design	N	Participant Characteristics	Intervention	Dosage	Outcomes and Results
<i>Students with more significant disabilities</i> Asaro-Saddler et al. (2014)	Single case design (single baseline)	1	Noonan syndrome	Explicit instruction in sentence writing with sight word learning	10 sessions (three per week); 25-45 min each	Picture prompts: improved sentence quality (PND = 100%) and sentence construction elements (100%)
Pennington and Rockhold (2018)	Single case design (multiple probe across behaviors)	4	Autism spectrum disorder	Discrete trials with a time delay procedure using word banks and pictures to prompt sentence writing; sentence frames	9-67 sessions to meet criterion; 5 min each	Sentence prompt: improvement in percentage of correct sentences constructed; variability in the number of instructional sessions needed to reach criterion (100% of sentences with required components)
Pennington et al. (2018)	Single case design (concurrent multiple probe across behaviors)	3	Intellectual disability	Discrete trials with a time delay procedure using sentence frames	5-14 sessions to meet criterion	Sentence prompt: improvement in percentage of correct sentences constructed across three sentence types; variability in the number of instructional sessions needed to reach criterion (100% of sentences with required components); variable maintenance and generalization

*Note.* ADHD = attention deficit hyperactivity disorder; ASD = autism spectrum disorder; BD = behavioral disorder; C-IWS = correct minus incorrect word sequences; CWS = correct word sequences; EBD = emotional and behavior disorder; IWS = incorrect word sequences; IEP = individual education program; IWS = incorrect word sequences; LD = learning disability; PND = percentage of nonoverlapping data; SLD = specific learning disabilities; SLI = specific language impairments; SRSD = Self-Regulated Strategy Development; TOWL = Test of Language Development; WIAT = Wechsler Individual Achievement Test.

<sup>a</sup>Cohen's *d* effect size reported by authors.

<sup>b</sup>Cohen's *F*<sup>2</sup> reported by authors (as reported by the authors, 0.02 is interpreted as a small effect, 0.15 is interpreted as a medium effect, and 0.35 is interpreted as a large effect).

<sup>c</sup>Tau-*U* reported by author (as reported by the authors, <0.20 is interpreted as small, 0.20-0.60 is interpreted as moderate, 0.60-0.80 is interpreted as large, and >0.80 is interpreted as very large).



In the following, we summarize each of the 16 studies. In the first section, we review the one study with a sample of typically achieving students. In the second section, we review studies ( $k = 12$ ) with a sample of students with high incidence disabilities (SLD, SLI, emotional or behavioral disabilities), followed by a review of studies involving students with more significant disabilities ( $k = 3$ ).

### **Sentence instruction for students who are typically achieving**

One study was identified that focused on students who were described as typically achieving. Hamzadayi (2015) investigated a progressive sentence development intervention to address both oral and written sentences with fifth-grade students. Students were shown a picture that they were asked to describe and then were taught to add details to the sentence. After doing this orally, the students were provided with eight lessons across 4 weeks using this approach to write sentences. The outcome measure was a rubric to evaluate descriptive writing. Students who received the progressive sentence development outperformed students in the control condition, and there were significant improvements in adding specific types of words, phrases, and clauses to sentences.

### **Sentence instruction for students with high-incidence disabilities/writing risk**

The majority of the studies ( $k = 12$ ) addressed sentence-writing needs for students with high-incidence disabilities or students who were identified as at risk or having academic difficulty in writing. Three studies used an explicit instruction approach, eight studies combined explicit instruction with a practice component to build fluency, and one study used a technology-based approach.

#### ***Explicit instruction***

Anderson and Keel (2002) investigated the effects of a direct instruction curriculum known as *Reasoning and Writing*. The participants were 11 fourth- and fifth-grade

students with learning disabilities or behavior disorders who were provided with special education instruction in a resource room by their teacher. The *Reasoning and Writing* curriculum was a direct instruction curriculum that taught the writing process through sequenced instructional steps, practice opportunities with feedback, and a mastery-based approach. Using a pretest-posttest design, there were significant improvements for participating students on the Test of Written Language—Second Edition Spontaneous Writing Quotient and for three of the five subtests. Two of the subtests, Syntactic Maturity and Contextual Style, were specific to sentence-level writing (for sentence-level grammar and conventions such as capital letters and punctuation, respectively) and also showed significant improvement after 6 weeks of instruction.

Furey et al. (2017) investigated instruction for fourth-grade students who were identified as needing additional writing instruction via a screening process (cut score on a writing prompt scored for correct minus incorrect word sequences). The study used a regression discontinuity design where the 19 lowest performing students received the 14-session program, whereas 88 students in the comparison group did not receive the instruction. The instruction included sentence composition lessons and revision strategies that were based on the Self-Regulated Strategy Development model (SRSD; Harris & Graham, 1999). The authors included both explicit instruction and metacognitive self-regulation strategies for revising sentences. They also included a strategy designed to help students edit their sentences. The first part had to do with framing, as in “Is my sentence framed with a capital letter and ending punctuation?” and “Does my sentence include a subject and predicate?” The second part addressed expanding or making the sentence more interesting and revising to make the sentence clear. Following 7 weeks of instruction, there were significant effects on writing conventions but not story writing on a norm-referenced writing outcome.

McCurdy et al. (2008) investigated the effects of a researcher-developed comprehensive writing program on the writing performance of ninth-grade students in three classes receiving special education services. The program included explicit instruction in a targeted writing skill, practice writing with a choice of story starters, and individual feedback as well as group rewards if students attained the targeted skill for three consecutive school days. The researchers delivered the intervention to intact classes. The outcome measure was a story starter scored for (1) the percentage of sentences that were complete, (2) the percentage of sentences that contained adjectives, and (3) the percentage of sentences that were compound sentences. Students showed an increase in performance across scores, but there was some variability in the magnitude of improvements across the three classes.

### ***Explicit instruction with a focus on fluent writing***

Datchuk and colleagues conducted a series of studies to improve sentence writing that used a similar instructional approach and study design. The studies all applied a behavioral fluency framework (Kubina & Yurich, 2012), which posits that learners must be able to demonstrate an academic task with *both* high levels of accuracy and fluency. As such, a fluency-building practice component that requires students to reach a certain criterion of fluent sentence writing was included. Sentence fluency was operationalized as the number of writing units, known as correct or incorrect word sequences, a student could write in 1 min. The participants were students with mild disability or writing risk in elementary schools (Datchuk & Dembek, 2018; Datchuk et al., 2020), students with emotional and behavioral disorders (Datchuk et al., 2015), and adolescents with mild disabilities or writing risk (Datchuk, 2016; Datchuk & Kubina, 2017; Datchuk & Rodgers, 2019; Datchuk et al., 2019). We summarize the main findings of the studies using this framework in the next section, noting the

different instructional components that were explored in each.

The studies began with lessons focused on an explicit instruction approach to sentence writing involving a model-lead-test format. The sentence skills included learning the parts of a complete sentence, identifying the parts of sentences, identifying complete or incomplete sentences, editing incomplete sentences, and correcting errors in capitalization and punctuation. Students also wrote sentences based on a picture prompt that included several words that could be used in the sentences. Two studies began with two lessons (Datchuk et al., 2020), three studies began with three lessons (Datchuk, 2016; Datchuk & Dembek, 2018; Datchuk & Rodgers, 2019), and one study (Datchuk et al., 2019) began with six lessons.

Following the lessons on sentence writing, the remaining sessions were designed to build fluent writing. The component, frequency building to a performance criterion (FBPC), included brief practice sessions focused on improving the accuracy and speed of sentence writing. Students were provided with prompts that included pictures and words. FBPC incorporates timed practice, goal setting with graphing of student performance, performance feedback, error correction, and praise. In six studies (Datchuk, 2016; Datchuk, 2017; Datchuk & Kubina, 2017; Datchuk et al., 2019; Datchuk et al., 2020; Datchuk & Rodgers, 2019), students completed three 1-min timed sessions. One other study involved typed responses (Datchuk et al., 2019) and another study included explicit instruction and a copying component for the first timed session (Datchuk, 2017). Sentence probes (similar to those used during instruction) were used as the dependent variable, and these were scored with modified correct and incorrect word sequences that did not require correct spelling. Across these six studies, students improved their ability to produce accurate sentences and the rate at which those sentences could be composed. Some individual student variation occurred in either initial

sentence acquisition during the instruction phase or in generalization or maintenance of performance over time.

Several other instructional components of either the explicit instruction lessons or the FBPC were studied. One study (Datchuk & Dembeck, 2018) added handwriting and spelling practice components to explicit instruction in sentence writing described previously and taught students how to spell high-frequency words that they were encouraged to include in their sentences. In another study (Datchuk et al., 2019), the authors looked at the effects of this instruction on typewritten responses during the fluency-building phase. In both studies, students improved their sentence accuracy and speed, but improvements were gradual or variable and some individual student accommodations were added.

### ***Technology-based sentence instruction***

One study used technology to teach sentence writing. Berninger et al. (2015) investigated the impact of a computerized writing program that targeted oral and written language. The participating students were fourth- through eighth-grade students identified with SLD. The intervention involved 18 sessions during a summer program and was designed to serve as a Tier 3 intervention. The computer activities included subword exercises focused on handwriting, word-level activities focused on spelling, and sentence-level activities focused on sentence composing. In addition to writing, there were opportunities for students to produce oral responses and read written language. Students who participated (there was no control or comparison condition) had significant improvements from pretest to posttest on a range of oral and written norm-referenced outcomes.

### **Sentence instruction for students with more significant needs**

Several studies included students with more significant special education needs. Asaro-Saddler et al. (2014) provided instruc-

tion to an individual student with Noonan syndrome, an autosomal dominant condition associated with a set of key physical characteristics as well as language, attention, and information-processing needs that can negatively impact academic achievement. This instruction had 10 lessons on sentence generation, and it incorporated the use of sight words and picture prompts. For the first four lessons, the student was provided with sight word practice to build a corpus of words to be used to create sentences. These words were then used to model writing a sentence based on a picture prompt, and the instructor included explicit self-talk about the task as it was completed. The instructor wrote a dictated sentence on a sentence strip, cut the strip into separate words, and the student reassembled the words into a sentence. The student then read the sentence and copied it. In the remaining lessons, additional words were introduced, but the student dictated his own sentences. The instructor wrote the sentence and cut it into parts for reassembly. After the sentence was reassembled, the student copied the sentence. In this single case study, the dependent variable was performance on sentence-writing probes that required the student to write in response to a picture prompt. These were scored for sentence quality (rated on an 8-point scale) and sentence construction (capitalization, punctuation, complete thought, and subject-verb agreement). The student demonstrated improvements in sentence quality and sentence construction.

Pennington and Rockhold (2018) investigated sentence-construction instruction for four students with ASD. For this study, three types of sentence frames were taught to students: *The (subject) is (adjective)*; *The (subject; verb)*; and *The (subject; verb; object)*. A set of picture stimuli including both nouns and verbs was provided. The instructional procedure included the teacher presenting a picture and one type of sentence frame. Students were directed to touch words presented on a digital tablet to create a sentence. The sentence was then read aloud by the

tablet application to provide audio feedback. The dependent variable was the percentage of correct sentences constructed. A sentence was scored as correct if it included a subject and a verb, was syntactically correct, and accurately described the picture. The instructional sessions used a time delay procedure with prompting. Students were able to meet the criterion of 100% correct sentences, but the number of sessions needed to reach criterion varied from 9 to 67 sessions. The authors noted that many students used a single sentence construction frame for all sentences, which suggests that different sentence structures may need to be taught explicitly.

Using a similar approach, Pennington et al. (2018) investigated sentence frames for students with moderate intellectual disability. There were three students who were 7 through 12 years of age. In this study, there were three frames taught to students: *I want \_\_\_*; *I see \_\_\_*; and *The \_\_\_ is \_\_\_*. Students selected words from a word bank that included a picture cue to complete the sentence. The percentage of complete sentences that students typed or wrote by hand was used as the dependent variable, and the criterion was 100%. A time delay procedure was used in the study. Students were able to reach criterion within 5–15 sessions, and there was evidence of generalization and maintenance.

## DISCUSSION

To strengthen students' writing achievement, attention to sentence construction is required. Struggling writers, in particular, have demonstrated difficulty with sentence writing (Graham et al., 2017). Although researchers have acknowledged the importance of sentence instruction (Graham et al., 2012), the research base is relatively impoverished. In this review, we have analyzed research over approximately the last 30 years that reports on sentence-writing instruction and included at least one sentence-level outcome. Our review has identified specific instructional approaches that have been assessed for their effectiveness for strengthening stu-

dents' written sentence production. Table 2 lists the different instructional components used across the 16 studies to teach sentence writing.

## Effective instructional approaches

As noted earlier, almost all studies applied principles of explicit instruction. These included a specific model-lead-test sequence (Datchuk, 2016, 2017; Datchuk & Dembeck, 2018; Datchuk & Kubina, 2017; Datchuk et al., 2015; Datchuk et al., 2019; Datchuk et al., 2020; Datchuk & Rodgers, 2019), direct instruction (Anderson & Keel, 2002), or a more general teacher modeling and student practice sequence (McCurdy et al., 2008). Overall, this led to improvements for the participating students. The adoption of explicit instruction is consistent with evidence-based recommendations for teaching discourse-level writing. For example, the authors of both of the primary and secondary Institute of Education Sciences Practice Guides recommended including explicit instruction and opportunities for practice (Graham et al., 2012; Graham et al., 2016).

Across the studies reviewed, there was variability in the type of practice, the amount of practice, and the mode of practice. Each study included some component described as practice where students applied the writing skills that they had been taught or were engaged in writing in response to a prompt and then provided with feedback. Pennington's studies (Pennington et al., 2018; Pennington & Rockhold, 2018) also included a time delay-prompting sequence during student practice. Fluency-based practice was included in each of Datchuk's studies following several sessions of explicit instruction. Each FBPC session was devoted to having students generate sentences with increasing fluency. The practice sessions ranged from 6 to 15 min, but the impact of the differing lengths was not systematically investigated. It seems clear that engaging in sentence-writing practice contributes to student learning; however, it is not clear what

**Table 2.** Instructional activities for sentence writing

<p>Teach students sentence parts and requirements for a complete sentence.</p> <p>Teach students identify whether a text is or is not a complete sentence.</p> <p>Teach students to edit sentences for capitalization and punctuation.</p> <p>Teach students to elaborate sentences by adding details (e.g., adjectives, adverbs, phrases, and clauses) to simple sentences.</p> <p>Include opportunities for students to practice writing sentences.</p> <p>Use sentence frames.</p> <p>Include self-regulation components such as strategies for sentence editing.</p> <p>Provide word banks and other forms of spelling and word support (including providing picture cues).</p>
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kind of practice or how much practice is needed to maximize growth.

There was also variability across studies with respect to dosage, including the length of each instructional session and the number of instructional sessions. For example, Anderson and Keel (2002) provided 25 daily sessions for 5 weeks, whereas Furey et al. (2017) provided two sessions per week for 7 weeks (14 sessions total). Other studies used a criterion to determine the number of instructional sessions, with a range as low as five sessions to reach criterion (Pennington et al., 2018) and as many as 67 sessions to reach criterion (Pennington & Rockhold, 2018). These factors would be important to consider in determining how best to plan sentence-writing instruction.

Although 14 of the 16 studies applied principles of explicit instruction in the design of sentence-writing instruction, other approaches were investigated. Berninger et al. (2015) applied a technology-based intervention for students in need of intensive interventions that provided practice opportunities and feedback in handwriting, spelling, and sentence-writing skills. In contrast, Hamzadayi (2015) focused on sentence generation by teaching students to add words or phrases to existing sentences both orally and in writing. This aspect of sentence-writing instruction, sentence expansion, did not appear to be addressed in any of the other studies but could indicate a promising addition to studies that primarily focused on accurate sentence production.

### Implications for future research

This review pointed to several important implications for future research on sentence-writing instruction. First, there was a small number of studies, both overall and within age ranges and student populations, that provided conclusive evidence of the effectiveness of any single approach to address sentence writing. One obvious gap in the existing literature is studies that teach young students, in kindergarten through second grade, to write sentences. Only a single study in our review included a second-grade student (Asaro-Saddler et al., 2014). It may be important to identify effective methods of sentence-writing instruction for early elementary students to help them meet curriculum standards. Early attention to sentence writing may also serve to reduce the number of students who exhibit sentence-writing difficulties later in their school careers and require supplemental interventions or special education services.

Given the large number of studies that include self-regulation in discourse-level writing research (Harris & Graham, 1999; Sun et al., 2022), it was surprising that more studies of sentence-writing instruction did not include specific self-regulation supports. The study by Furey et al. (2017) was the only one with specific attention to these components using an SRSD framework and a strategy for editing sentences. It seems likely that self-regulatory practices such as self-monitoring and planning strategies could be beneficial for

students when writing sentences. This may provide one direction for future research.

Finally, future research may be able to address the methodological weaknesses of the existing studies. Of the group studies, several did not include a control or comparison condition, random assignment of students to condition was rare, the number of participants suggested underpowered designs, and there was little attention to fidelity in many of them. In the single-case research, some interventions did not always show a clear functional relation between the intervention and the dependent variable for all students or all groups of students. As research on sentence-writing instruction continues, we hope that stronger research designs will produce more conclusive findings about the impact of this instruction for all students.

### Limitations of the current review

There are some limitations of this review to consider. First, only those studies that included sentence-level outcomes were included. This eliminated several studies that

used a broader writing outcome such as a norm-referenced test of writing or story-writing prompt. Second, we did not conduct a meta-analysis or independently calculate effect sizes because of the small number of studies, the limited data presented in some studies, and the variability in study outcomes and methods.

### SUMMARY

In sum, we reviewed 16 studies on sentence-writing instruction. Overall, studies featuring explicit instruction were associated with improvements in writing. Of note, improvements were reported in diverse contexts (e.g., grade level, disability status) with a variety of methodological approaches (i.e., study design). An important conclusion is that further study of sentence-level writing, especially for younger students, paired with rigorous design standards is warranted. To improve students' ability to write effectively across levels of language, more research on sentence-level instruction is needed.

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